FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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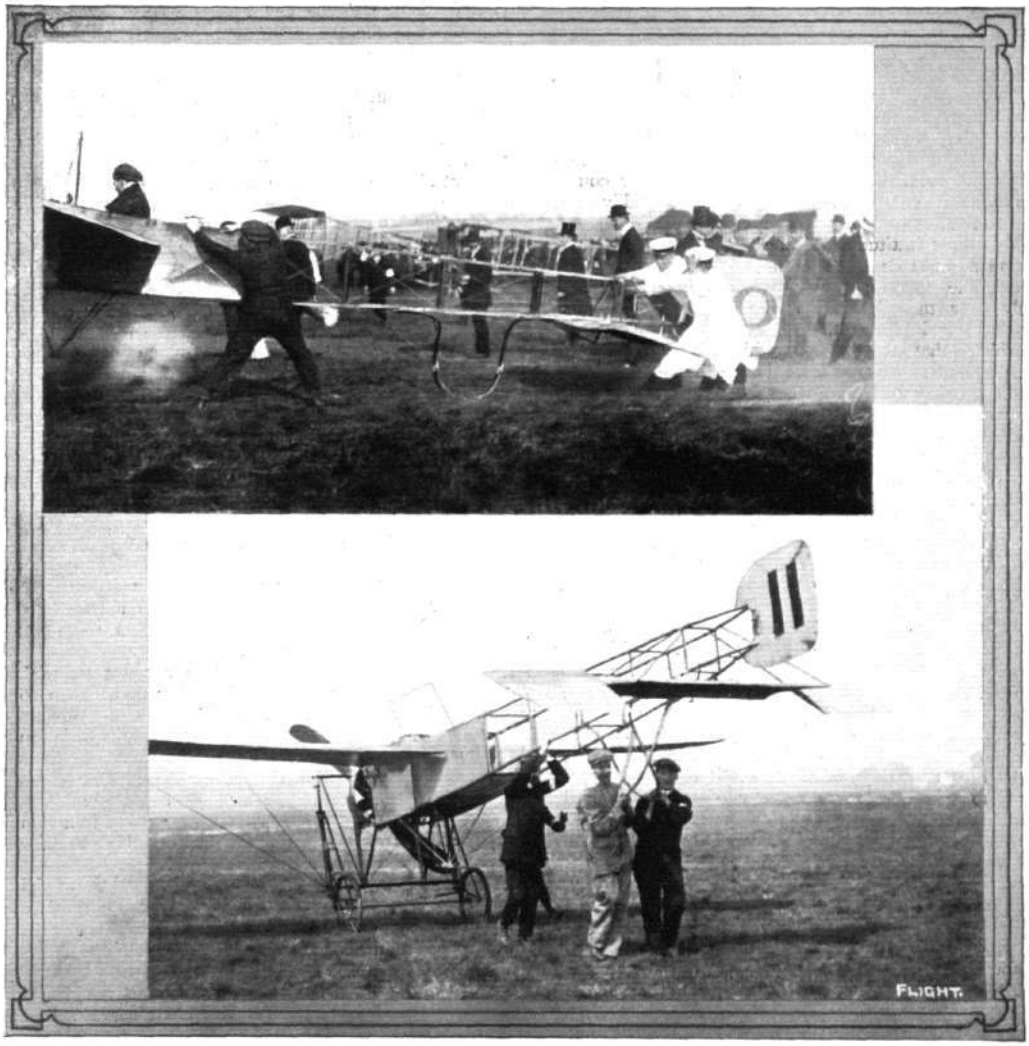


INCIDENTS AT HENDON.—The impatient Blériot monoplane before flight, and returning to its hangar after work.

REPRESSION UP-TO-DATE.

THERE was not the slightest doubt that the panic Aerial Navigation Bill of the present Government would pass into law, even as amended, with its unnecessary and repressive clauses. It is hard to reconcile the Home Secretary's statement that this Bill is not put forward as a solution of the difficulties attending the legislative aspects of the new form of locomotion and that the Government would regret doing anything which would hamper the development of the new science with the text of the Bill. Indeed, we would go farther and say that it is next to impossible to reconcile these avowed sentiments with the act of attempting legislation at all at the present juncture. There is not the slightest need for any interim legislation at all, unless such legislation were to take the form of strengthening the hands of the Royal Aero Club, which has already more power over the aviator than even the common law of the country. This aspect of the question is very well put by Mr. Gerald Biss in the *Standard*. As he points out, the Bill makes the same initial error as the Motor Car Act. It does not strive to work hand in hand with the already established authorities on the subject, but to set them in opposition and on the defensive. What this means is that the future function of the Royal Aero Club will be that of protecting the interests of aviation and aviators against oppression and prejudice on the part of local officials, whereas, had a wiser course been taken, its complete support would have readily been given to the authorities.

The whole attitude of the Government towards aviation seems to us to savour of futility. Suppose, for example, that an aviator had made up his mind to fly over the Coronation procession. He would only have arrived at this determination because of one thing—that it would pay him to do so. The advertisement alone would be worth a good round sum of money, to say nothing of what he might make directly. In any case, he would certainly stand to make more than sufficient out of it to cheerfully contemplate paying even the swingeing fine which is laid down by the Act as a penalty for transgressing its provisions. Therefore, why should he not deliberately break the law and make money out of doing it? If the law stood alone, there is no adequate reason in the wide world why he should not, but at the back of it all lies the fiat of the Royal Aero Club which has ruled that if he do so his licence will be taken from him, which simply means that his career as an aviator is definitely and finally closed. Therefore, the whole aim and object of his flight would be defeated, for although his advertisement would be complete enough—too complete, in fact—the power to reap its results would be taken from him. Surely this is demonstration enough that legislation is both unnecessary and ill-judged. It is unnecessary for the reasons we have adduced and it is ill-judged from the point of view that it turns the Royal Aero Club from an active coadjutor of the constituted authorities into a latent enemy. The latter may be a somewhat strong term to use in this connection, but we think it is fully justified in the light of what has happened in motoring. For what reason do most of the motoring bodies exist to-day? Simply and primarily to protect their members from the harsher interpretation of harsh laws, which is merely another way of saying that they exist for the specific purpose of putting a brake upon authorities who through ignorance or prejudice would carry the law to its most ultimate end. The mistakes of the Motor Car Act have resulted in the generation of much bad feeling between those subject to them and the authorities charged with their administration. All this—or a great deal of it—could have been avoided if the Government of the day had thought fit to base its legislation upon the knowledge of experts instead of going blindly into questions of which it knew nothing. The case of the Bill under discussion is an absolute parallel to this and unless the Government can be induced to see it in this light the net results will be the same. Prejudice and ignorance will run riot; the story of the police trap and its iniquities of deliberate hard swearing will be rewritten; and a growing and important industry will suffer untold harm.

On the face of things, we should not object to the Bill so much—except on the ground of superfluity—did we not know by bitter experience that it is hopeless to expect any other result than that it will give a loose rein to that popular inertia which does so much to retard everything in the shape of progress. Already we see symptoms of the same campaign directed to the inflaming of the public mind which was characteristic of the earlier days of the automobile movement, the basis of which was pure distortion of fact. The *Evening Times* of the 29th ult. devoted a quarter of a column to what it termed "Aviation Disasters. An epidemic of fatal and other accidents." To read such a heading is to imagine a veritable holocaust, but what do we find on analysing the details? That the fatal accidents were accounted for by the deaths of two women and a soldier, killed at Lyon in a scuffle among the crowd that was struggling to get near the competitors in the Paris-Turin flight! Dissecting the other "disasters," we find that M. Vedrine's aeroplane was *nearly* destroyed by a gale; M. Vidart's capsized—this, for the sake of making the list bulk up, is recounted twice in somewhat different words; an aeroplane fell into a street at Kursk, injuring a hundred people—no one but our contemporary appears to have heard anything about such an accident; the death of Mr. Benson is included, as is also that of Mr. Smith, who was killed at St. Petersburg. The Editorial note to this wonderful list is to the effect that a Bill had been introduced providing against reckless or negligent aerial navigation, and adds that "The numbers of fatalities among spectators has rendered this step an imperative one." Was ever a more flagrant distortion of the truth? Where, will our contemporary tell us, have occurred all these fatalities among spectators which has rendered imperative such a Bill.

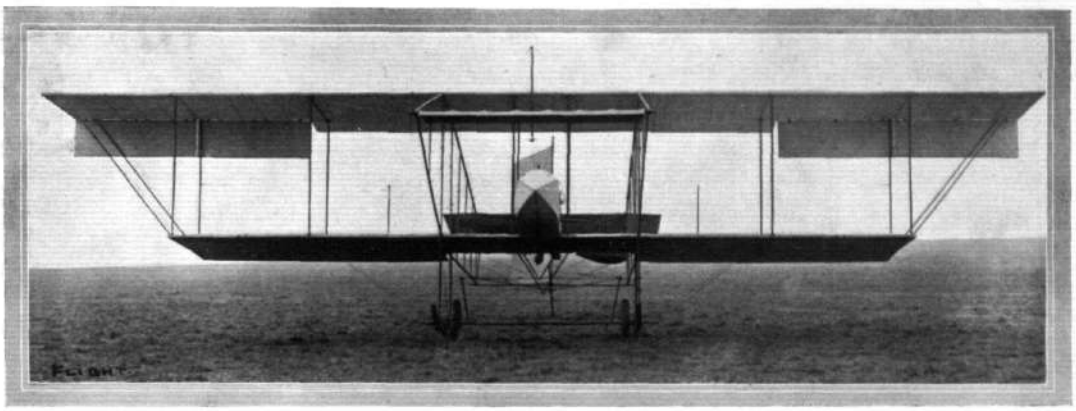
Ignorance has to be taken into account as well. During the debate on the Bill the other night, even so sound a lawyer and broad-minded a man as Sir William Bull displayed a woeful amount of ignorance of aviation and its conditions in the course of certain questions addressed by him to the Home Secretary. One of his brilliant ideas was that before a person could be allowed to become an aviator he should be guaranteed in a sum of £1,000, so that there would be something to draw upon in case of his causing an accident!

But if the Government had done the logical thing and asked the Royal Aero Club to assist in the control of aviation, all this would have been saved, because the man in the street would have accepted the situation as being quite in order. Now he cannot help gathering the impression that aviation is some sort of a dangerous beast which needs to be kept under strict supervision and control.

FLIGHT

THE SHORT BIPLANE, 1911 TYPE.

CONSIDERING their position as pioneers of aeroplane construction in England, and the reputation that they have established for thoroughly reliable if particularly British workmanship, it is a matter of course that any production of Short Brothers should be regarded with special interest. The machine at present under review, which is the latest output of the Sheppey factory, reflects modern prejudice in favour of the Farman type biplane, a prejudice that is well founded, for by diagonal ties leading to the rear transverse boom of the main planes. The same system of trussing is applied to the elevator outrigger, which member is of the accepted triangular frame type. The elevator itself is a cambered monoplane, and is operated on the Farman system from a universally pivoted lever that is mounted vertically and centrally in front of the pilot. From this lever wires also pass laterally to the hinged balancing planes that trail behind the extremities



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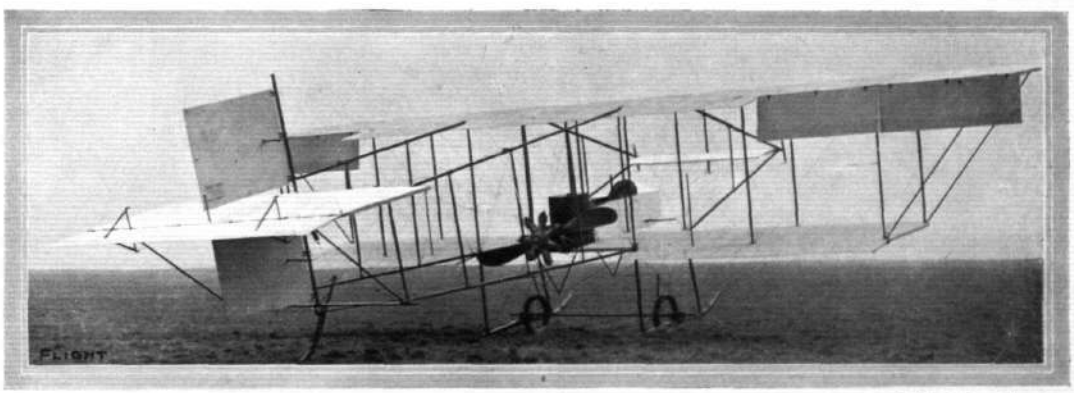
Front view of the Short biplane 1911 type.

it is after all not surprising that pilots should prefer to fly those machines which have proved most successful. Moreover, it is often by taking a successful type as a basis in design that there is most scope for originality in detail development, and it is in this respect that Short Brothers' work has always been notable, in their earlier machines no less than in this. As a matter of fact, too, the general design of this machine differs considerably from the real

of the upper main planes. A glance at the front view of the machine shows how these balancers are of exceptionally long span, and consequently have a relatively high aspect ratio.

It will also be observed from this front view of the machine that it belongs to the extended upper plane or "military" type, the upper plane having a span 14 ft. in excess of the lower plane, and the overhanging extremities being supported



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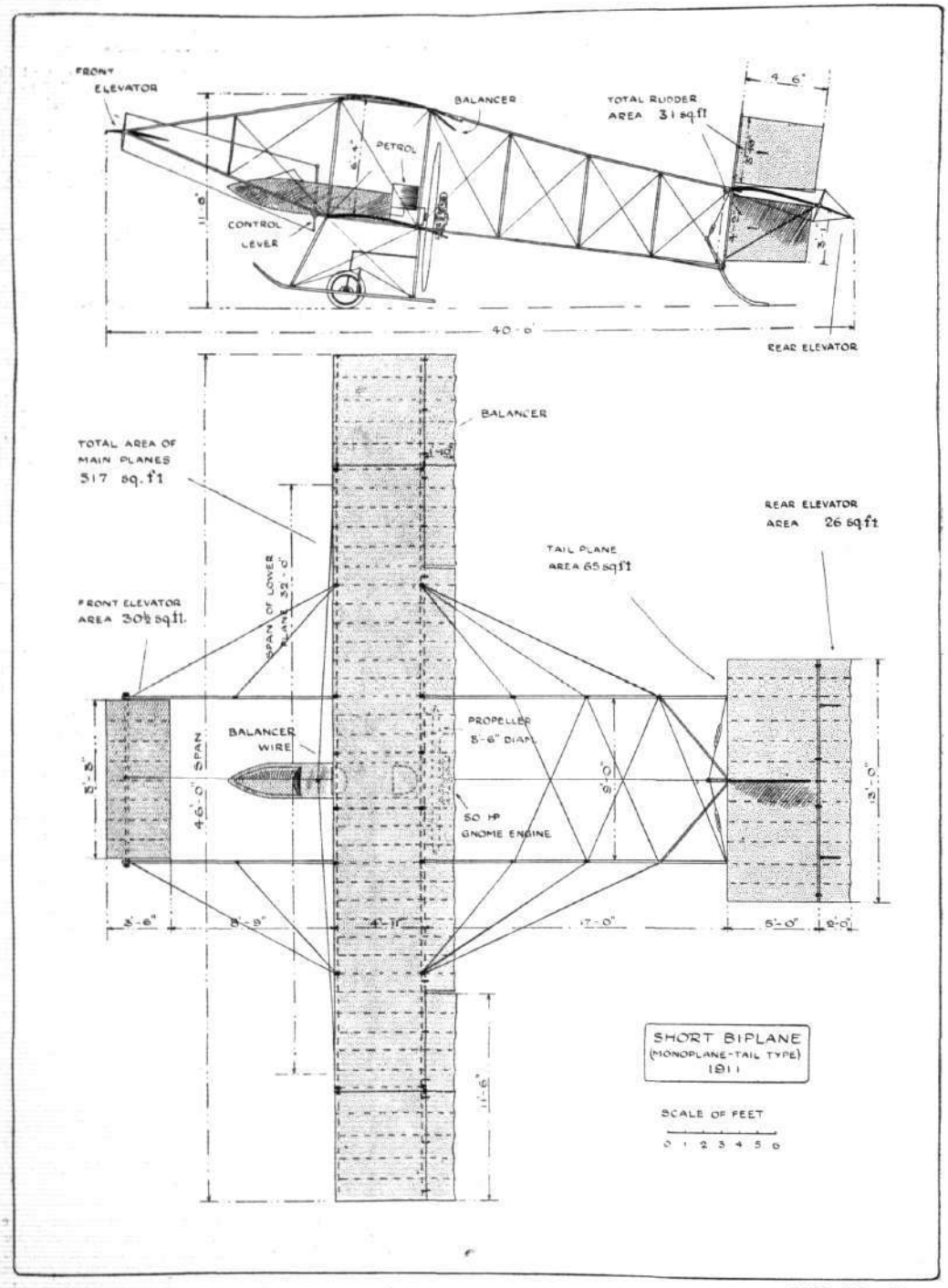
View from behind of the Short biplane, showing the Gnome engine in position.

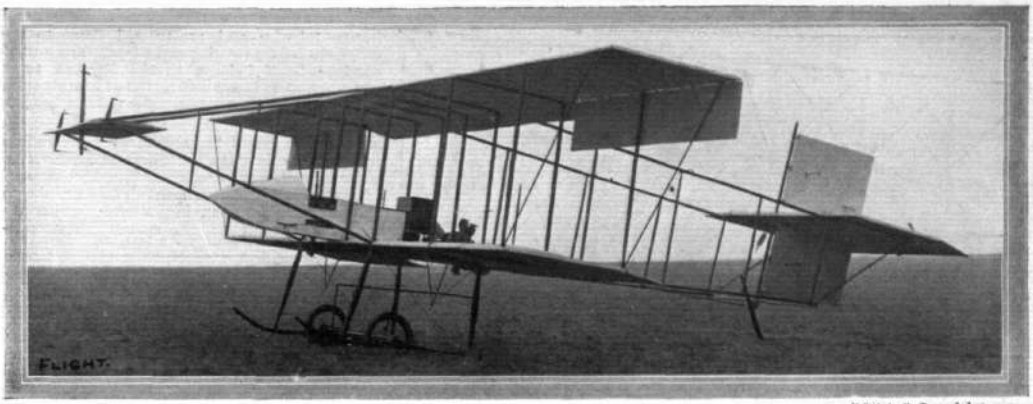
Farman so soon as its construction is looked into with more than superficial interest. Even the casual observer, for instance, will notice some difference in the appearance of the tail, which includes a monoplane lifting member fitted with a trailing elevator attachment and a large divided rudder half of which is above and half below the horizontal plane.

Particular attention may also be directed to the trussing of the tail outrigger, which is especially well stayed laterally

by slanting stays attached to the extremities of the lower main spars. Altogether the machine is a neat and well thought out example of rather a large type of flyer, and by no means the least interesting or important of its features is the elaborate system of bracing that characterises the design. Two points of special importance in this connection are the struts in the gap of the panels on either side of the main central panel, and the fore and aft struts in the chord



THE SHORT BIPLANE, 1911 TYPE.—Plan and elevation to scale.



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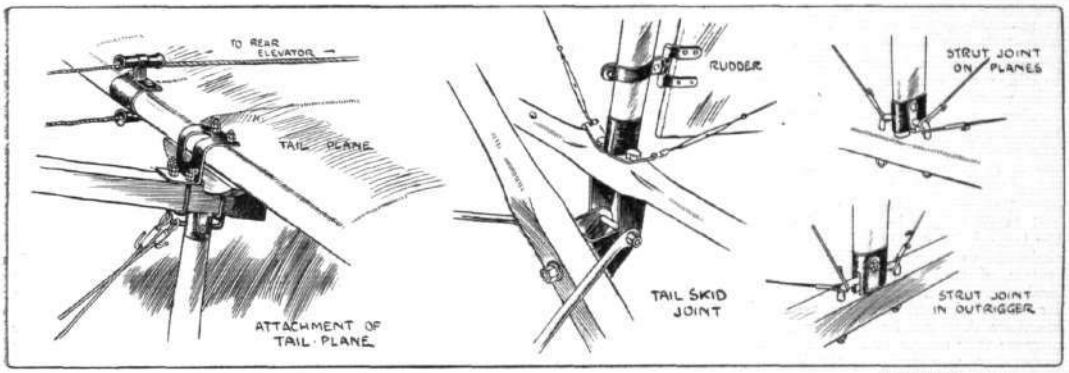
Side view of the latest Short biplane, showing the enclosed car for the pilot and passenger. The horizontal rib in the extremities of the main planes, which are cambered elsewhere, is a curious feature of interest.



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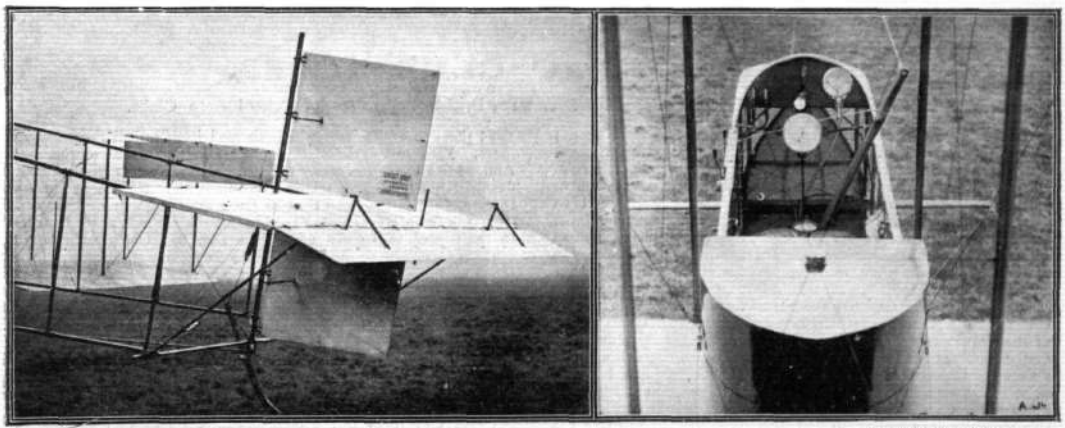
Sketches illustrating some of the joints on the latest Short biplane.



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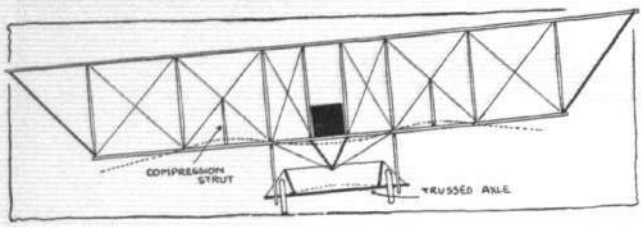
Views of the tail and the pilot's car on the latest Short biplane. In the view of the tail one of the balancers on the extremities of the upper main planes appears rather like a vertical keel in front of the rudder, due to an absence of proper perspective in the photograph.

of both upper and lower main planes. The former struts join the points of intersection of the diagonal tie wires with the rear spar of the lower main plane, and their purpose is to add stiffness by resisting the bending that is apt to take place at this point when the machine lands. The nature of the stress induced is illustrated by one of the accompanying



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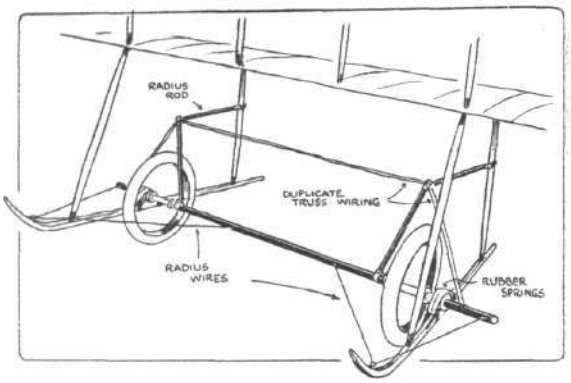
Diagrammatic sketch illustrating the special trussing of the lower main plane to resist the stresses imposed by a rough landing due to the concentration of the load in the centre of the plane and of the weight of the extremities of the planes acting through the leverage of a wide span.

sketches, which shows how the principal mass represented by the engine and pilot tends to make the spar sag in the centre, while the same result tends to take place at the extremities, due to the mere weight of the planes. As a result a sinuous deflection is set up in the spar, which tends to bend up in those panels immediately adjacent the main central panel. The presence of vertical struts in this position thus tends to stiffen the entire spar by resisting deflection at the point where the tendency to bend is most pronounced. Similarly a V-frame trussed diagonally is introduced immediately beneath the centre of both main spars. The purpose of the fore and aft struts in the chord of the main planes is to provide a framework that is independent of the ribs or fabric of which the planes proper are constructed. In the Short biplane the ribs and fabric might be stripped off the machine, and the box-girder construction would still remain as a skeleton to which the planes might be refitted. This system of construction enables lighter rib sections to be used throughout, and in some respects gives greater latitude for the design of the planes as independent supporting members than can be considered apart from any subsidiary purpose they may play in the construction of the machine.

Another interesting constructional detail of the same order is the axle of the under-carriage of this machine. It will be observed that the axle it stiffened by vertical struts adjacent to the wheels, which struts are tied together by a horizontal wire and are trussed down to the axle extremities by diagonal wires. The under-carriage itself belongs to the Farman type, inasmuch as it is a wheel and skid combination joined by rubber springs, the use of radius-wires and the arrangement of the radius-rods, as shown in one of the accompanying sketches, however, really puts the Short under-carriage quite in a class by itself.

Some minor constructional details are shown in another accompanying sketch, which illustrates several of the special joints employed. Short Brothers have always had a marked preference for the use of manganese steel fittings, and the illustration in question shows a variety of ways in which this material is employed. Especially interesting are the U bolts and slotted ferrules, by means of which the struts are attached to the booms with a minimum reduction in the material of either. A detail that is sure to attract attention in our photograph is the use of straight ribs at the extremities of the main planes. Elsewhere the planes are cambered as usual.



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Sketch illustrating the construction of the Short under-carriage and axle.

SCHOOL AERO CLUB NOTES.

By ROBERT P. GRIMMER, General Secretary, British Federation of School Aero Clubs.

A VERY progressive school aero club is the one at Simon Langton School, Canterbury, of which Mr. E. L. Hills is the secretary. This club, although formed so recently as February 25th last, is in a flourishing state, and the members are constructing a team of man-lifting kites. A number of model aeroplanes have been successfully designed and flown and a full-sized glider may follow. I am arranging to give my lecture "The Work of the School Aero Club," at Canterbury, when I shall have the pleasure of personally congratulating the members on the results they have achieved.

I have recently read to the members of my own club an encouraging message from M. Gache, of the "Lycée Carnot," one of the most important schools in Paris. He says, "Permit me, my young friends, to congratulate you both on your efforts and on your perseverance. On your perseverance especially, because it is the most supreme quality of your race, which in other days and in other lands has made the glory of England. That England will increase this glory through you is no less than truth, for shining like the light in you as in your fathers is the practice of sustained effort, which splendid quality is truly in the blood of your great race. Persevere in the studying of and experimenting with models daily, and you will thus realise the principles of the large machines, and finally overcome the indifference of the older generation. I have in mind at this moment the group of children that FLIGHT represented as assembled before the great white bird which the unfortunate Cecil Grace had mounted to attempt the crossing of the Channel. Oh! the fine enthusiasm which showed itself on all those young faces. What ardent desire to explore also the realms of the air! And, as one feels sure, a day will come when, masters of their own destinies, they will give themselves—many among them at least—to the new science, happy thus to serve their country and to contribute to her glory. Honour then to these future aviators! Honour to the school aero clubs of neighbouring and friendly England! Honour especially to the oldest school aero club in the world, to the famous Arundel House School Aero Club, of Surbiton!"

This is encouraging as showing the views of a famous French educationalist, but by way of contrast I give an extract from a letter I have just received from a prominent and influential English schoolmaster. "Owing to the *terrible* risks incurred in aviation, many of my little fellows' parents would not like them to attempt any experiments even with model aeroplanes. I find it would not be at all popular to introduce the subject." Can we really be so decadent? Is this the spirit of the race that has tamed the seas and flung the British flag over a fourth of the known world?

I have received scores of inquiries about the "Federation" from schools in every part of the British Isles. If things go on as they have commenced we hope to have a hundred affiliated clubs before Christmas. But the summer is by far the best time for model flying, and I beg my readers not to put off forming their clubs till the autumn, when days are short again. There is no time like the present.

FLIGHT

THE HYDROGEN BALLOON.

RESULTS OF THE FIRST TRIAL.

By GRIFFITH BREWER.

IN last week's FLIGHT the theory of the advantages derived by the use of hydrogen and by the peculiar construction of the "Bee" were propounded, and now the results of the first trial are available to confirm and add to the theory.

The first ascent of the "Bee" has proved what advantages can be obtained by the use of hydrogen instead of coal gas. It took about three-quarters of an hour to inflate the balloon, part of the hydrogen coming direct from a gasometer and the remainder from tubes at high pressure. In spite of the warnings of her friends, who doubted the strength of a netless balloon, the Hon. Mrs. Assheton Harbord had decided to make the inaugural ascent, and when we were both in the car, with 40 lb. trail rope, 12 lb. grapnel, instruments and a tea basket, the balloon was found to lift 11 bags of ballast, weighing together about 400 lbs. The wind was light, and we got away with a gentle lift and passed over the town of Wolverhampton at a height of 400 or 500 ft. Although the speed of travel was only about 12 miles an hour, we were very quickly in the open country, and it was quite easy to keep the balloon below 1,000 ft. by a slight manipulation of the valve and ballast, although the sun coming occasionally out behind clouds tended to make the balloon unstable. The difference in the attention required to control this little balloon was noticeable from the first. We enjoyed all the advantages of a larger balloon of similar lifting power, and yet we had all the advantages of reduced effect of expansion and contraction of the gas of a small balloon. After being in the air about 40 minutes we heard thunder to the west, and as this continued and seemed to be approaching somewhat fast, we decided to make a descent, and, if possible, peg down the balloon until the storm had passed. We descended lightly in a ploughed field, and the local inhabitants took hold of the trail-rope and towed us over a hedge into the next field of grazing land. We then procured two barrow loads of bricks and put these into the car, besides filling up two spare bags of ballast, and we were then able to get out of the balloon. The worst of the storm was soon over, but the rain continued and thick clouds were everywhere, so we decided to get the balloon into a hollow and try to keep her inflated ready for an ascent later on. There was a sheltered spot between trees and in a valley quite near, so we carried the balloon to a suitable position and tethered her to her grapnel and a pair of crow-bars. Mr. Radley, who had been following the balloon in his car, was one of the first to greet us on landing, and now having assisted us in pegging down the balloon, he drove us to Albrighton, where we had supper. After supper it was raining so persistently that we persuaded Mrs. Harbord to sleep at the inn and we would call her at 4 o'clock the next morning, and Mr. Radley and myself then went back to the balloon and slept near to it in his motor car. During the night heavy rain fell and soaked the balloon thoroughly.

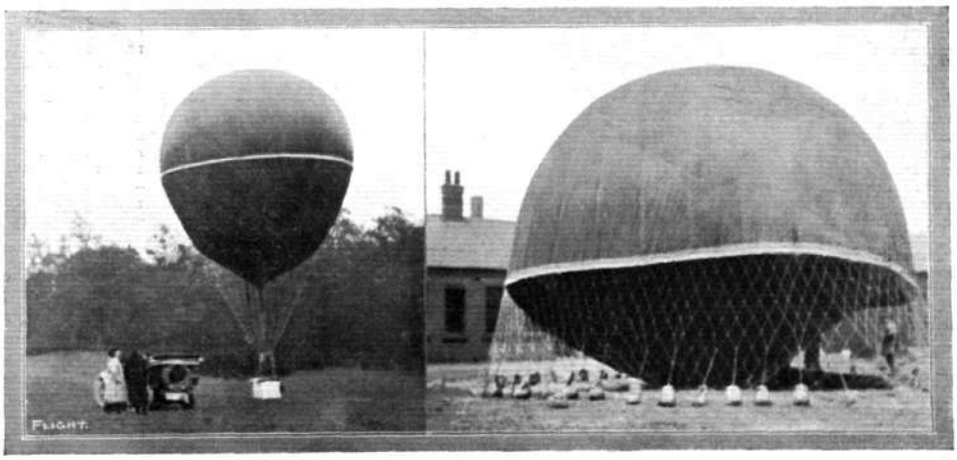
In the morning at 4 o'clock, the rain having just stopped, Mr. Radley went to fetch Mrs. Harbord, while I prepared the balloon for the ascent. In order to remove any pond that might have collected in the centre of the balloon, I rolled her from side to side, but the lightness of the valve, the power of the hydrogen, and the upper surface not being quilted by a net had prevented any sagging taking place, and there was no water collected in the centre or in pleats to roll off, it having all run down the smooth sides of the balloon without collecting. At 5.35 we let go, and gradually lifting the trail-rope off the ground travelled nearly due south at about 12 miles an hour. During this early morning ascent the balloon gradually dried, but owing to the comparatively small surface and to the fact of the net not being on the upper portion but commencing at the equator, but a small amount of water was held by the fabric and the drying of the balloon did not cause much tendency to rise. The fact of there being no net on the upper surface besides preventing the collection and retention of water, also saved us from the customary discomfort during the drying of the net, of the unpleasant sensation of the car dropping in short jerks (which would have been unavoidable in an ordinary balloon).

The sky was overcast and as the balloon gradually dried we compensated for the increasing lift by using the valve, the very slightest pull on the valve line being sufficient to check the tendency to rise, and very shortly after leaving the ground we got the balloon into complete equilibrium.

At the end of two hours and ten minutes we landed a second time near Hartlebury station, four miles beyond Kidderminster, and again tied up the balloon, Mr. Radley taking Mrs. Harbord into Kidderminster to breakfast while a farmer brought me breakfast to the balloon, because we could not conveniently get sufficient weight into the car to allow of both of us leaving it. At this temporary landing the neck was tied up with a pocket handkerchief by climbing up into the hoop and the height of the neck being only about five feet above the hoop this was easily accomplished.

After breakfast we again went up, and as we did not desire to go very high and the sun was shining through mist, we kept opening the valve every few minutes in order to compensate for the tendency to rise owing to the expansion of the gas, and we gradually worked down the Severn Valley at an average height of from five hundred to one thousand feet until we came to the town of Worcester. Just as we were passing the town, thunder which had been audible in the far distance for some time, now became more pronounced, and so we landed in a grass field near Powick, two miles beyond Worcester. On this occasion we thought Mr. Radley had entirely lost us and that he was on the other side of the Severn, but he turned up amongst the first people to arrive and he helped to deflate the balloon and pack her up, and then we drove in his car into Worcester for lunch and afterwards for London.

The conclusions arrived at by this experimental ascent, point strongly to the many advantages to be gained by the use of hydrogen instead of coal gas. One of the foremost is that of being able to use a balloon of half the capacity, and, therefore, of considerably less weight than an ordinary balloon, and incidentally this means considerable saving in initial cost when using rubber fabric in the manufacture of the balloon. The greatest advantage, however, appears to be the small amount of expansion and contraction of the



Mr. Griffith Brewer's hydrogen balloon "Bee."

gas, thus economising ballast to an enormous extent, and facilitating the handling of the balloon. The expansion and contraction would in an ordinary balloon have been considerably more—at least double that experienced on this occasion. A further advantage rests in the greater ease of descent, because of the reduced surface exposed to the wind. All these advantages are due to the use of hydrogen instead of coal gas.

The advantages of the equatorial band method of attaching the net are of course considerably less, but if its only advantage is the prevention of the net slipping on the fabric and allowing the car to drop suddenly short distances whilst high in the air, then it is sufficient to warrant its adoption. When heavy rain falls the smooth spherical upper surface does not hold the water, which can therefore run down to the drip band and fall off without collecting in the net pleats as formerly. A balloon without a top net cannot therefore add weight under rain to the extent of a balloon with a top net. There is a disadvantage in the use of an equatorial band, instead of a net over the entire surface of a balloon, and that is during the first half of the inflation when the balloon cannot be easily controlled; but unless one wishes to make ascents in very rough weather this is not really a disadvantage; such a balloon could not certainly be filled in half-a-gale when it might be possible to fill another balloon.

Specification of Balloon "Bee."

Capacity... ...	18,000 cu. ft.	Length of neck ...	5 ft.
Diameter ...	32·6 ft.	Diameter of neck ...	18 ins.
Circumference ...	102 ft.	Rip panel	15 ft.
No. of gores ...	32	Valve diameter ...	16 ins.
Length of gores	51 ft.		

Weights.

Envelope, neck and net lines...	275 lbs.	Trail and grapnel rope	44 lbs.
Car	81 ,,	Grapnel	12 ,,
Hoop	12 ,,	Valve	10 ,,
Rip line	2½ ,,	Balloon wrap ...	7 ,,
Valve line	1 lb.	Valve bag	1 lb.
Cover net	1 ,,		446½ lbs.

Makers of balloon ... Short Bros., Battersea.
Makers of fabric ... Continental Rubber Co.
Makers of hydrogen gas Knowles Oxygen Co., Wolverhampton.

AVERAGE JUNE WEATHER.

By T. F. MANNING.

JUDGING from the weather records June should be the best flying month of the year. It has the fewest gales, almost the fewest fogs, and the fewest rain days of any month. There is no snow and very little hail. June has the longest days and almost a maximum of sunshine. And if it were not for thunderstorms this would be the best month in every respect.

There is, however, the question of moderately windy days, with regard to which I have no statistics available except those that show June up rather badly in the matter of "calm" days. Reckoning a calm day as one in which the movement of the air is less than two miles an hour, June has fewer of these than any other month except April. It is better than April, but worse than May. But calm days are rare even in the best month, December, when they average 2½. Actual gales are least frequent in June, the odds against a gale during the whole month being 4 to 3. But July and August run this month very close. This is for London, the South Coast, and the Scotch Coasts. On the East and West Coasts July has the smallest number of gales, June coming next.

Thunderstorms now enter their period of greatest frequency, which is June to August. They are nearly half again as frequent as in May but still far short of the July maximum. This is a very irregular phenomenon. We may have none or many in any particular June, but the average is two thunderstorms during the month. Hail does not properly belong to summer, but for some reason it often accompanies the thunderstorms of June while it seldom attends those of July and August. It is scarcely worth considering, for there is only an average of one hailstorm in three years during the whole month. No snowfall is recorded for June, July or August during the past century.

Fogs are nearly down to their minimum, and the odds against a fog in London during the whole of June are exactly the same as in the case of gales, 4 to 3. Of dense fogs there are only seven in a hundred Junes. The mean temperature is 6° above May and 21° higher than in January, the coldest month. But although the mean temperature goes up steadily from the beginning to the end of the month, we usually have a cold spell, with brisk northerly winds, in the second or beginning of the third week.

Cloud is recorded at Greenwich by means of the figures 0 to 10, 0 indicating a quite cloudless day, 10 meaning a sky entirely overcast, and intermediate figures denoting the amount of sky covered. As regards cloud, June is almost the same as May, except that the sky is not completely overcast quite so often. The average is 4½ days of little or no cloud, 16 to 17 moderately cloudy days, and 7 to 8 overcast or very cloudy days. In January, February and December nearly half the days are very cloudy or overcast.

Rainless days are most numerous in June. Taking an average of sixty-three years at Greenwich nearly one-third of the days are rain-days and two-thirds rainless. October, the month of most rain-days, has 15 wet and 15 dry. But while this is the average there have been Junes with as many as 27 rainless days and other Junes with only 7. A rain-day, according to Greenwich meteorologists, would not, however, be always called a rain-day by ordinary people, for it means a day on which at least $\frac{1}{100}$th of an inch falls during the twenty-four hours. As a small shower would give this amount we may expect many more fine days than the records indicate.

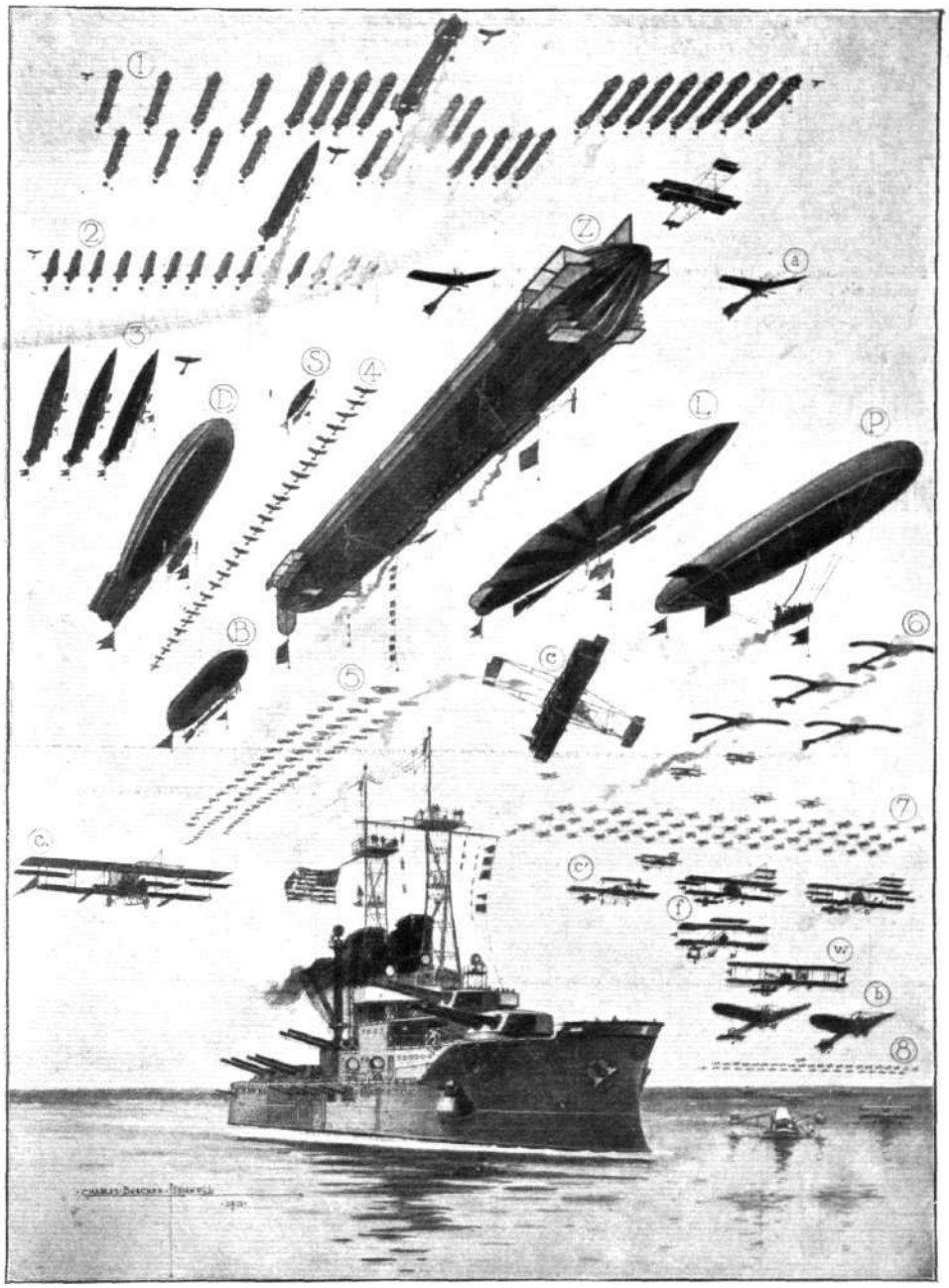
There are four days in the year which have been particularly fine since the year 1841, and one of these is June 27th. On the other hand, some of the heaviest falls have occurred on June 5th, 10th and 13th, and there have been more heavy rainfalls in June and July than in any other month. So that although this is the finest month in the year it is one in which we are likely to get an unexpected and thorough wetting. Contrasting this with last month we have the following number of events in a period of ten years:—

	May.	June.
Ten years' gales ...	10	7½
,, snowfalls ...	1½	0
,, fogs ...	7½	7½
,, hailstorms ...	8	3
,, thunderstorms	13	20
Rain days (at least $\frac{1}{100}$ in.)	12½	11½

	May.	June.
Hours of sunshine during month	201	196
Average rainfall	1·91 in.	2·03 in.
Mean temperature	53·1°	59·4°
Degree of humidity	74·2	73·6

The following table shows the number of events for each day during a period of one hundred years. The chances against any event on a given day or week are as 100 to the figures in the table:—

Day.	Gales.	Fogs.	Snow.	Hail.	Thunder.	Rain Days.	Mean Temp.
1	2	3½	–	2	3	35	57·2
2	5	3½	–	–	2	35	57·7
3	1	1	–	–	5	40	58·0
4	4	1	–	1	7	41	58·2
5	2	2½	–	2	11	36	58·3
6	1	5	–	1	10	46	58·3
7	2	2	–	4	8	47	58·2
1st week ...	17	18½	0	10	46	280	—
8	2	5	–	–	5	40	58·2
9	2	2	–	–	6	44	58·2
10	4	3½	–	3	5	36	58·2
11	6	1	–	1	4	33	58·4
12	5	3½	–	–	5	33	58·6
13	1	5	–	1	7	43	58·8
14	2	3½	–	1	8	40	58·9
2nd week ...	22	23½	0	6	40	269	—
15	1	1	–	3	6	40	59·0
16	5	2	–	2	6	38	59·0
17	3	3½	–	1	8	41	59·1
18	1	2	–	1	11	41	59·2
19	1	6	–	–	6	44	59·8
20	2	1	–	1	5	46	59·9
21	4	1	–	–	4	36	60·3
3rd week ...	17	16½	0	8	46	286	—
22	2	2	–	1	4	35	60·7
23	2	3½	–	2	5	30	61·0
24	3	2	–	1	9	41	61·2
25	3	2	–	–	6	35	61·3
26	3	1	–	–	10	40	61·4
27	1	2	–	2	5	27	61·4
28	2	1	–	1	11	36	61·3
4th week ...	16	13½	0	7	50	244	—
29	2	3	–	2	9	33	61·2
30	2	1	–	–	6	44	61·2



Explanation of the above reference figures, &c.:—1. Squadron of 29 Zeppelins (Dreadnoughts). 2. Squadron of 13 Parsevals in command of 1 Lebaudy (cruiser). 3. Squadron of 3 Lebaudys (cruisers). 4. Squadron of 27 Blériot monoplanes. 5. Squadron of 74 Wright biplanes. 6. Squadron of 4 vanadium racers, *Scientific American* type. 7. Squadron of 69 "big Curtiss biplanes." 8. Squadron of 46 Curtiss hydro-aeroplanes. Z. Zeppelin dirigible (Dreadnought class). D. Deutsch dirigible (cruiser class). L. Lebaudy dirigible (cruiser class). P. Parseval (cruiser). B. Baldwin (scout). S. Santos Dumont (scout). C. Commander of aero scouts. c'. Curtiss monoplane. c. Scout aero. e f. Farman biplane scout. w. Big Wright scout. b. Blériot (two types). a. Antoinette (1 to each flagship and 2 to the commanding officer's ship).

Some mistaken enthusiasts believe that the money put into battleships would be better spent in creating fleets of airships. Both will be required—battleships for the warfare of the seas, aeroplanes and dirigibles for the battles of the air.

A 10,000,000-DOLLAR AERIAL FLEET FOR COST OF ONE DREADNOUGHT.—(*Scientific American*).

AN AUSTRALIAN PIONEER AND CONSTRUCTOR.

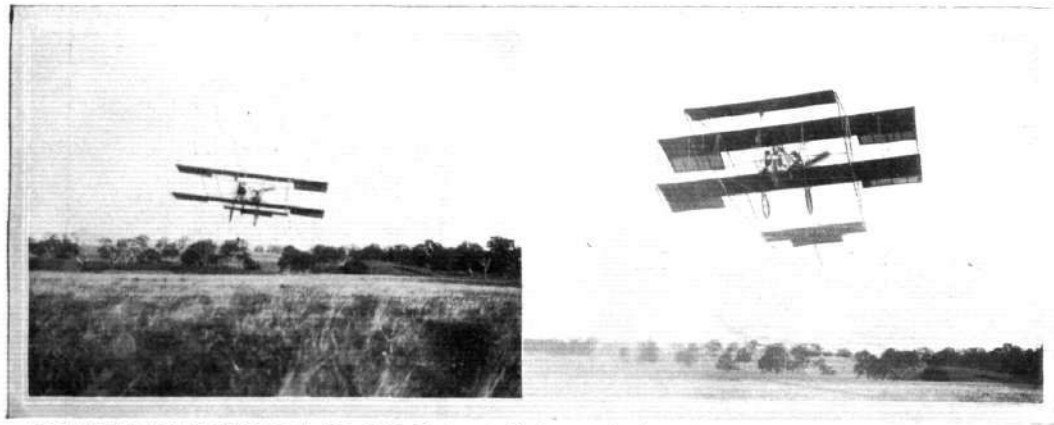
WRITING from Spring Plains, Mia Mia, Victoria, Mr. J. R. Duigan sends us some very interesting particulars and photographs of his pioneer work in Australia which has ended in his construction of a successful biplane. Mr. Duigan tells his story thus:—"I am sending a couple of photos of two recent flights I made here with a machine built entirely by myself with the exception of the engine. I have been working on it for about two years now, having to do all my own experimenting, make all fittings, wheel gears, propeller-shaft, as well as design it all. The wheel gear was originally sprung but not trailing, and this caused the only two breakages I have had. Since altering it to trailing I have had 25 flights, most over 100 yards, many over 200, and three of about a quarter of a mile, the only damage being two slightly bent plunger rods on one landing due to the piston sticking. The springs are compressed air. My engine was built here, originally being a 4-cyl. vertical air-cooled 86 by 108 mm., and weighing about 135 lbs. Since then I fitted water-cooled heads, which was an improvement, but the power was not great enough, so I fitted larger cylinders, 94 mm., with same heads, and this has given the flights shown. I have had endless difficulties, but have managed to overcome them all, and have made a machine that will lift in about 50 yards, and is under perfect control and can be trusted to always land safely. The machine is 25 ft. wide and about 28 ft. long, and weighs with 10-stone operator about 620 lbs. Engine is 138 lbs., 1 gal. water 10 lbs., radiator, centrifugal (all designed and made by myself), 7 lbs., piping 2 lbs.; total of engine and water-cooling 165 lbs. Propeller, shaft, stays to take pull of chain, and thrust-stays, about 40 lbs. This leaves 275 lbs. for the machine, minus engine and operator, which is light as it is all ash with the exception of the ribs, and is all double-surfaced with Dunlop material, made here.

"Both photos were taken when the machine was about 110 yards from starting-point. All the calculations were based on Sir H. Maxim's figures given in his excellent book on artificial and natural flight, and that book has been all I have had to work on.

"I have been a subscriber to your paper for over a year now, but have not previously sent any photos. The machine is very different now in appearance to when first completed. My first successful controlled flight was on October 7th, 1910, when I flew 196 yards at a height of about 12 feet. I had had hops long before that but the machine was not quite under control. That 196 yards flight was the first successful flight by an Australian built machine. The

Mr. J. R. Duigan, the Australian aeroplane pioneer-constructor and flyer.

engine also was made in Melbourne by J. E. Tilly, a motor engineer. The ground I use for flying limits me to a bit over a quarter of a mile and there is no other in the district, so I have done about all I can do now. At present I am considering my next move, which may possibly be in your direction."



AN AUSTRALIAN BIPLANE.—Mr. J. R. Duigan in flight upon his Australian-built biplane at Mia Mia in Victoria. The machine is about 100 yards from starting point in left-hand photo and 110 yards in right-hand one. The small plane at rear is connected to elevator. The propeller is 8 ft. 6 ins. diameter and 10 ft. pitch, is driven by ⅞-in. Brampton chain, gear 19 teeth and 42. Ordinary Bosch cycle magneto, two brakes, 4-cyl. motor, Schebler carburettor, with inlet-pipe bored out.

Touring by Balloon.

TAKING part in the Royal Aero Club Point-to-Point Balloon Race was but an incident in the performance made by the Continental Tyre Co.'s balloon "Hannover," which was piloted by Consul Stollwerck. Leaving Hurlingham on Saturday week the "Hannover" first landed within 34 miles of the objective in the point-to-point race and thus secured the second place. Later in the day the balloon re-ascended and then went on to just outside Dean Station, near Salisbury, where another descent was made. The inhabitants towed the balloon into the village so that the passengers were enabled to alight outside the hotel, where the balloon was anchored for the night. At 8 o'clock the next morning the same passengers took their places in the basket, and continuing the journey, the balloon followed the coast for about three hours and then moving inland passed over Exeter at one o'clock, while a final landing was made at Challow Park, about 7 miles west of Exeter, an hour later. The great feature of this trip was undoubtedly the demonstration of the possibility of anchoring a balloon for the night and being able to continue the journey with the same passengers the next morning. In the instance under review only seven bags of ballast were taken on board at the start and considering the length of time the balloon was in use the performance reflects very creditably on the gas-tightness of the Continental fabric.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, the 6th inst., when there were present:—Mr. R. W. Wallace, K.C., in the Chair, Mr. Griffith Brewer, Col. H. C. L. Holden, R.A., F.R.S., Prof. A. K. Huntington, Mr. V. Ker-Seymer, Mr. Alec Ogilvie, Mr. C. F. Pollock, Sir Charles D. Rose, Bart., M.P., and Harold E. Perrin, Secretary.

New Members.—The following new members were elected:—R. F. H. Crewe, Edward Ross Lowe, Leonard Williamson, and John Robert Wood.

Aviator's Certificate.—The following Aviator's Certificate was granted:—

92. Lieut. H. R. P. Reynolds.

Flights Over Towns.—Mr. D. Graham Gilmour attended before the Committee and explained the circumstances of his flights at Salisbury. After considering the evidence, the Committee decided to accept the explanation of Mr. Gilmour, but to caution him as to the necessity of observing strictly the regulations issued by the Club forbidding flights over towns or thickly-populated areas.

The Committee considered the flights reported to have been made by Mr. H. G. Melly over Liverpool. From inquiries made, the Committee was satisfied that the newspaper reports were incorrect, and that at no period of the flight in question was Mr. Melly over the city or suburbs of Liverpool. Corrected statements have since appeared in the Liverpool Press.

Mr. Melly, in reply to a letter from the Club asking for particulars, states:—

"I am in a sense pleased to receive your letter, and to see that you are taking such strict lines with regard to this flying over towns, as I am sure it could do the cause of aviation no good."

The Committee decided that the explanation given by Mr. Melly was perfectly satisfactory.

Gordon-Bennett Aviation Cup.

The race for the Gordon-Bennett Aviation Cup will take place at Eastchurch, Isle of Sheppey, on Saturday, July 1st, 1911, and is timed to start at 11.46½ a.m. According to Greenwich Observatory, the time of sunset at Eastchurch on July 1st will be 8h. 16m. 30s., and the race will therefore commence 8½ hours before sunset.

Admission.—Members of the Club will be admitted free to the special enclosures on production of their membership cards. These facilities apply to members only, and any friends accompanying them must pay for admission. The price of admission to the enclosures will be 5*s*.

Motor Cars.—A special enclosure, giving an uninterrupted view of the whole race, will be reserved for motor cars. The charge for motor cars, including the driver, will be 10*s*. per car. A route map from London to Eastchurch is being prepared and will be ready in a few days.

Refreshments.—Arrangements have been made with the Army and Navy Stores, who will erect large marquees, where luncheons, teas and other refreshments can be obtained.

Dinner to the Competitors.—It is proposed to give an informal dinner to the competitors at the close of the race, when the cup will be presented to the winner. This dinner will be held in a special marquee erected on the ground, and in order to meet the convenience of those members returning by railway, a special train will be arranged to leave Eastchurch after the dinner.

Railway Arrangements.—The South Eastern and Chatham Railway will run special trains from Victoria to Eastchurch on the morning of the race, and full particulars will be issued to the members in the course of the next few days.

Accommodation for the Public.—Standford Hill, which overlooks the whole of the flying ground, has been kindly handed over to the Club by Lieut.-Col. Sir George Holford. This hill forms a natural grand stand, from which every incident of the race can be seen. The charge to this hill will be 1*s*. Marquees for refreshments will be erected here by the Army and Navy Stores.

Several members of the Committee visited Eastchurch during the Whitsuntide holidays. The flying course for the Gordon-Bennett Race was settled, and the total length will be 6 kilometres. This will mean 25 circuits of the course to complete the distance, viz., 150 kilometres.

"Daily Mail" Second £10,000 Prize.

The date of entry, without increased entry fee, has been extended to June 20th, 1911. Formal entries, accompanied by the £25, may, therefore, be made by any person up to that date, but the entry form, duly signed by the competitor himself, together with the balance of entry fee, £75, must be received on or before July 1st, 1911.

The following entries have been notified:—

Theodore Le Martin (Blériot).	O. C. Morison (Bristol).
André Beaumont (Blériot).	D. Graham Gilmour (Bristol).
Gustav W. Hamel (Blériot).	C. P. Pizey (Bristol).
James Radley.	B. C. Hucks (Blackburn monoplane).
C. Grahame-White.	
C. H. Greswell.	Lionel Hollands.
Robert Loraine.	Universal Aviation Co.—Two aeroplanes (H. J. D. Astley and E. "Smith").
J. Armstrong Drexel.	
S. F. Cody.	
James Valentine (Deperdussin).	Aeronautical Syndicate, Ltd.—Two Valkyrie aeroplanes (H. Barber and another).
Maurice Ducrocq.	
Pierre Prier (Bristol).	
M. Tabuteau (Bristol).	L. Breguet.—Two aeroplanes.
M. Tetard (Bristol).	Antoinette, Ltd.—One monoplane.
E. C. Gordon-England (Bristol).	Morane-Borel.—Three monoplanes.

The start will be made from Brooklands on Saturday, July 22nd, 1911, at 3 p.m., and competitors will alight at the Hendon Aerodrome. The aeroplanes will remain at Hendon on the Sunday and the start for Harrogate will be made at 4 o'clock on the Monday morning. Special arrangements for the members of the Club have been made at Brooklands and Hendon whereby members will be admitted free on production of their membership cards. These facilities apply to members only, and any friends accompanying members must pay for admission.

Whitsuntide Visitors to Eastchurch.

On Saturday Prince Louis of Battenberg, accompanied by the Princess, visited Eastchurch and witnessed flights by the four Naval officers, Mr. Alec Ogilvie, Mr. L. Jezzi, Mr. J. W. Dunne and Prof. A. K. Huntington. Mr. Wilbur Wright, who came over from the Continent, spent Whitsuntide at Eastchurch with Mr. Alec Ogilvie.

The Manville £500 Prize.

On Monday, June 5th, 1911, at Brooklands, S. F. Cody, accompanied by a passenger, made a flight of 1 hr. 4 mins. This flight, with the time allowance, will count as 80 mins. in this competition. The weight of passenger and pilot was 296 lb.

HAROLD E. PERRIN,
166, Piccadilly. Secretary.

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PROGRESS OF FLIGHT ABOUT THE COUNTRY.

Aero Models Association (CAXTON HOUSE, WESTMINSTER).

THE Association will hold an open flying competition on Mitcham Common on June 17th at 3 o'clock. Three events will be decided, viz., 1, models rising from ground; 2, duration of flight; 3, distance. Entrance fees: members 6*d*., non-members 1*s*. Entries should be sent to the hon. secretary, Mr. W. F. Ransley, 9, Aspinall Road, Brockley.

The Parkside Aero Club.

THIS club, originally known as the Paddington Aero Club, is arranging a model competition for June 17th (Saturday), at Parkside, Harrow Road, W. There will be three events: 1. High Flying and Stability Competition, open to all comers—1st prize, model racing monoplane, value £2 2*s*.; 2nd prize, silver medal; 3rd prize, silver medal or pair propellers, value 5*s*. 6*d*. 2. Duration Competition for all comers, time flights—1st and 2nd prizes, silver medals; 3rd prize, materials value 5*s*. 3. Circular flights to right and left—Silver medals will be given for first, second, and third prizes. The Paddington Aero Club Challenge Cup, for best all-round flight in each of the events, will be awarded; present holder, Mr. Spice. Entries close June 12th. Non-members' entrance fee, 1*s*. each event.

BRITISH NOTES OF THE WEEK.

Our Prize Model Scheme.

A FURTHER contribution in connection with our Prize Model Scheme has been received from

J. P. White.

Lord Northcliffe Flies with Henry Farman.

ON Monday of last week Lord Northcliffe had an instructive flight at Versailles with Mr. Henry Farman in his latest "silent" military biplane. A lengthy cross-country trip was taken through the Chevreuse valley, and the new "silent" Renault aviation motor well maintained the high reputation of its makers.

The King and Mr. Cody.

ON Monday evening King George witnessed the arrival from Brooklands of Mr. Cody, and during the King's visit at Puckeridge Hill Camp on Tuesday afternoon His Majesty spent some time in conversation with Mr. Cody, and promised to visit the latter's shed on Laffan's Plain later in the day. It was about 7 o'clock when His Majesty arrived, and after Mr. Cody had explained the various points of his machine, he started up the engine, although a fresh breeze was blowing, and executed a circular flight round the camp, on his descent being heartily congratulated by the King upon the display.

The Women's Aerial League at the Court Theatre.

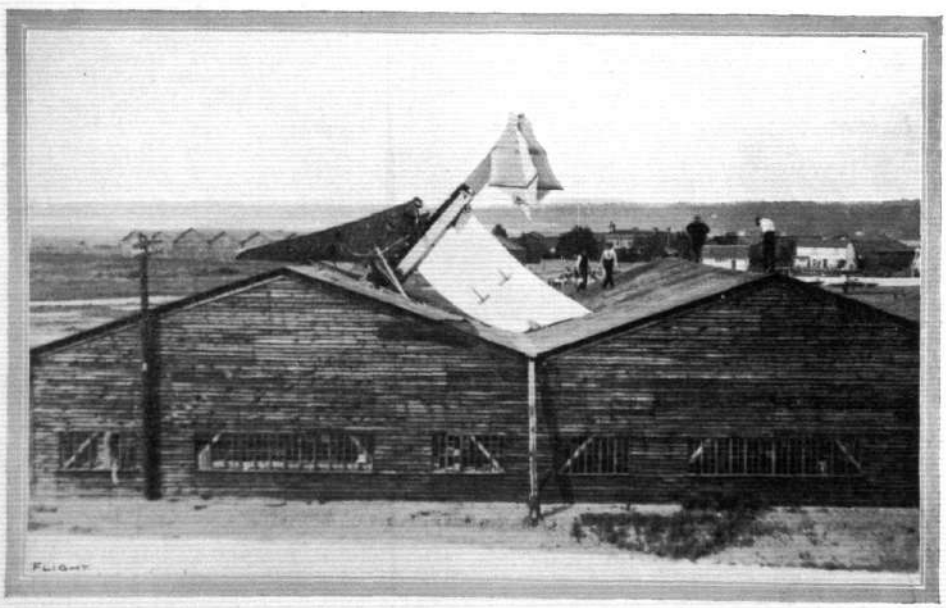
As recently announced, a version by Alfred Sutro of Maurice Maeterlinck's drama, "Monna Vanna," which was banned by the censor, was produced on Thursday last week at the Court Theatre. Needless to say, this play is neither directly nor indirectly associated with the art of flying, but it was made the excuse whereon to bring together a number of those associated with the Women's Aerial League, and thereby possibly assist the cause which they are so strenuous in helping along. Incidentally, after the first act, the Dowager Lady O'Hagan, as President of the League, presented Mr. Grahame-White with the gold medal of the League. Mr. Grahame-White, in acknowledging the presentation, with his customary gallantry, stated that he valued the medal all the more as being a gift from ladies who, his experience taught him, were possessed more of the type of courage required in aviation than was to be found in men.

Aviation Creates Another Record.

IN the passing of the Aerial Navigation Bill through the House of Commons and the House of Lords and the formal Royal assent by Commission given to the Act, all under a week, a record has been established for Parliamentary speed. After getting through the Commons, it passed all its stages in the House of Lords on June 1st, and on June 2nd it was accorded the Royal assent, the same day being duly returned to the House of Commons with notification of such Royal assent. In the House of Lords, Lord Herschell, in moving the second reading, referred to the circumstances under which the Bill had been rushed through, mainly by reason of the flying over the Boat Race this year, and with the fear that a similar performance might be repeated in connection with the Coronation, in spite of the Royal Aero Club notice warning aviators against such flights. It had, in fact, been introduced in response to representations from the Chief Commissioner of Police to the Home Secretary to provide against any possibility of such a danger arising. Lord Herschell further said that in an amended form the Bill had passed through the House of Commons with the assent of the Royal Aero Club and the Aerial Defence Committee. He was authorised to give the strongest assurances that the Government not only had not the slightest desire to impede the study and progress of aerial navigation, but, on the contrary, were anxious to promote it. It was in the interest no less of the aviators themselves than of the general public that efficient means should be found of preventing the possibility of a grave disaster which might, and probably would, turn public opinion entirely against aviation and aviators. A Bill on the whole subject was actually in draft, and would be brought in as soon as the state of public business permitted. The Bill was then read a second and third time and passed, as already intimated.

A Bristol Racer Over Bristol Channel.

THE large number of Bristolians who visited Filton on the evening of the 30th ult. in the hope of seeing some more flying had their journey rewarded by witnessing one of the finest flights M. Maurice Tétard has ever made in the vicinity. Rising a few minutes after 7 o'clock in the new Bristol racing biplane, a very swift-looking machine, M. Tétard, after a few graceful circles over the Filton Works, swept away in the direction of Westbury. Passing close to Hollywood Towers, the residence of Mr. Stanley



Mr. Hubert Latham's Antoinette after its unconventional "call" at the Martin-Handasyde hangar on Whit-Monday at Brooklands. Mr. Latham was quite unhurt.

White, he continued on his course, and passed over the Avonmouth Docks and then out over the Channel, flying at a height of about 2,000 ft. Steering the Bristol racer southward, he continued for some miles and then turned inland to the Somerset side of the Avon and followed its course as far as Pill. Here he crossed into Gloucestershire and flew back across country to Filton, landing with a magnificent *vol plané* from a height of about 200 ft.

Special interest attached to the flight, as it was made on the new light type of Bristol biplane, designed expressly for speed, and also because it was the longest yet attempted with this machine.

"Wake Up England"!

FOR sheer ignorance of facts and narrow-mindedness of outlook surely it would be very hard indeed to beat the following gem of a letter that appeared the other day in the *Pall Mall Gazette*. Of a truth this country still needs the cry "Wake up England!" so long as a single subject dares to glory in publicly preaching such retrograde doctrines. W. D. Gainsford, of Skendleby, is the writer, and under the heading "The new danger to landlords," he says:—"The French aeroplane disaster—one must not call it accident—sets before us a question demanding of speedy answer. Are we to permit 'aviators' to trespass through our freehold without let or hindrance, to the great danger of life and property existing thereupon?

"The rights of the landowner extend '*usque ad cœlum*'; and the aviator is as much a trespasser as the poacher, but far more detrimental and destructive.

"Through the supine stupidity of the common highway traveller in allowing his rights to be invaded, automobilists have acquired a right—through implication of a statute—to use our highways, to the great distress and danger of the rightful users thereof. Are we now going to allow our property to be violated and our lives endangered in our very homes by the reckless fancy of suicidal maniacs?

"As for myself, I will certainly cause a writ of trespass, '*quare clausum fregit*,' to be served upon anyone whom I catch within my aerial freehold; and every other man of common sense will do the same.

"Were it possible that this flying fad could ever be turned to useful purpose, the matter would be different. But every mechanical engineer knows well that such is impossible. Scouting in war is the only use that can ever be hoped for from the aeroplane. And the gas-supported absurdity will never do even that—that is why the military authorities have selected it, no doubt!

"Ballooning has been practicable for a hundred and thirty years, and is as useless as it ever was and ever will be.

"And that being the case, no man of common sense will submit to the danger of being flown over."

M. Farman Carries Mr. Loraine.

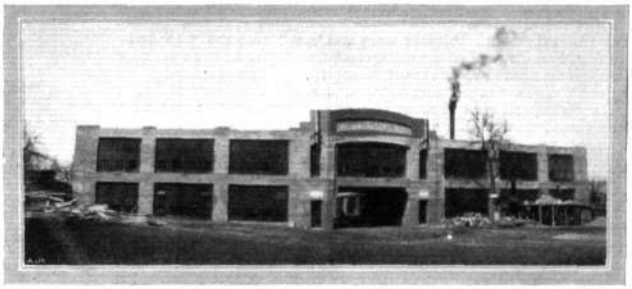
AT Mourmelon on Saturday last, Mr. Farman, on his small biplane, took Mr. Robert Loraine for a flight, rising, with a useful load of 450 kilogs., to 350 metres in less than 4 mins.

Aeroplane Accessories.

IN many directions important firms are keeping in touch with the growing requirements in connection with the progress of aviation, and are ready at short notice to enter into the field of supply. Amongst those who have just issued their first catalogue in this direction are Messrs. Pfeil and Co., of St. John's Street, Clerkenwell. The aeroplane accessory section of their business, which they have now formally inaugurated, includes a number of special articles and appliances which are in daily request, and range from wire strainers, bolts, nuts, and tubing, to lathes, compasses, altitude recorders, &c. Those who are interested should write the firm for one of their lists.

The Simms Magneto in America.

MR. F. R. SIMMS, who has just returned from the United States, reports that the new works of the Simms Magneto Company of New York, at Bloomfield, New Jersey, were completed on April 15th. At present the works are arranging to turn out 40,000 magnetos only a year, although they could turn out nearly double that number. The first magnetos will be ready on July 1st, and considering there was still grass growing on the spot where the works are situated on September 20th, 1910, this is no mean achievement. The new works, a photograph of which we reproduce on this page, are built on the most modern principle of reinforced concrete, and are capable of employing at present about 1,100 hands. The factory has been laid out by MR. SIMMS on the principle that the raw material arriving at one side of the entrance to the court-yard is worked right round the works until it arrives on the opposite side as a finished magneto, the idea being to handle no part twice.



Responsibility for Accidents at Aviation Meetings.

IT would appear that Sir W. Bull is very anxious to protect the public from third party aviation risks, judging by a long question which he put to the Home Secretary in the House of Commons last week. He asked whether clauses would be inserted in the Aerial Navigation Bill bringing abetment within the scope of the Bill, so that the organisers of an aviation meeting might be held responsible in case of accident due to the absence of reasonable precautions for safeguarding the public, increasing the penalty in the case of any person who navigated an aircraft recklessly or negligently, in a manner which was dangerous to the public, when such person was not a holder of a certificate of efficiency delivered by execution of the Royal Aero Club, or such competent authority as might from time to time be determined, and allowing no navigator of an aircraft to hold a certificate of efficiency unless he was previously guaranteed in a sum to be determined, say £1,000, such guarantee being available for compensation in the case of an accident due to neglect or want of skill on the part of the navigator.

In explaining that the Bill was only of an interim character, Mr. Churchill went on to say that the above points would be considered before general legislation was proposed.

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THE EUROPEAN CIRCUIT.

As the details are now practically complete, it is possible to publish the stages of the European Circuit, and for convenience of reference we give them in the following summarised form:—

June 18th.—First stage. Paris to Liège. Control at Rheims. Start from Vincennes, finish at Ans aerodrome, Liège. Prize £1,600.

June 20th.—Second stage. Liège–Spa–Liège. Control at Belle Fagne, near Malchamp. Prize £400.

June 21st.—Third stage. Liège–Utrecht (Soesterberg). Control at Verloo. Prize £1,200, and £400 for first Dutch aviator.

June 23rd.—Fourth stage. Utrecht–Brussels. Control at Breda. Prize £1,600 (£1,000 for the section Paris to Brussels, and £600 for the stage).

June 25th.—Fifth stage. Brussels–Roubaix. Prize £600.

June 26th.—Sixth stage. Roubaix–Calais. Probable control at Dunkerque. Prize £400.

June 27th.—Seventh stage. Calais–London. Controls at Dover and Shoreham. Prizes, £2,500 offered by the *Standard* for section Paris to London, and £400 offered by Shoreham for daily stage.

June 29th.—Eighth stage. London–Calais. Controls at Shoreham and Dover. Prizes £400.

June 30th.—Ninth stage. Calais–Paris (Vincennes). Control at Amiens. Prizes, £8,000 offered by the *Journal* for entire Circuit, and £800 for the stage.

The entries include two Bristol biplanes for which Tabuteau and Tetard are named as pilots, two Bristol monoplanes, one of which may be piloted by Prier, four Morane monoplanes (Vedrines, Frey, Gaget and Lesire), four Sommer monoplanes (Bathiat, Kimmerling, Molla, Martin), three Blériot monoplanes, four Deperdussin monoplanes (Vidart, Busson, Aubrun), three Breguet biplanes (Blanchet, Debussy), two Henry Farman machines (Wynmalen, Loridan), two Maurice Farman (Renaux and Barra), two R.E.P. monoplanes (Amerigo and Mamet), two Caudron biplanes (Duval, Alland), three Astra-Wright biplanes (Gaubert, Contenet, Labauret), one each Voisin biplane (Bielovucic), Antoinette monoplane (Comte Robillard), Danton biplane, Anzani biplane, Anzani monoplane, and an unnamed monoplane entered by Comte d'Hestel.

FROM THE BRITISH FLYING GROUNDS.

Royal Aero Club Flying Ground, Eastchurch.

ALTHOUGH Sheerness cannot really be called the "Home of the Aeroplane," as some railway posters have it, yet those who visited that thriving community during the holidays must have been convinced that there was an aeroplane nest not far away, since these hornet-like creatures were constantly to be seen flying in the near vicinity of the town.

Last week the weather was exceptionally good for flying, and most of the aviators at Eastchurch were out every day. On Thursday, Lieut. Samson made an early morning flight to Teynham (Kent).

Friday was a memorable day, the flying grounds being honoured by a visit for the second time of Their Royal Highnesses Prince and Princess Louis of Battenberg, and earlier in the day by the first of aviators, Mr. Wilbur Wright, who motored down from London with Mr. Griffith Brewer.

The Prince and Princess were conducted over the grounds by Lieut. Samson, and witnessed several fine flights during their stay. At the moment of their arrival Naval Lieut. Gerrard started up on the Short No. 34, and was followed almost immediately by Lieut. Longmore, also flying a Short biplane. For some time the aviators continued to carry out various evolutions in the air, at one time passing at a height of some 200 ft. almost over the heads of the Royal party, who were thus able to witness perhaps the most impressive view of an aeroplane, as seen from underneath during flight. Their Highnesses evinced the greatest interest in the flying, and when the two aviators finally landed the Prince expressed a wish to have a closer view of an aeroplane starting. This evolution was entrusted to Lieut. Gregory, who got into the air nicely after a run of some 20 yards, and continued a gradual ascent up to 500 ft.

As the Royal party were about to leave the grounds their attention was attracted by the sound of another aeroplane starting up, the engine of which gave off quite a different "music" to the Gnome-driven Short biplanes. It proved to be Mr. Alec Ogilvie, who was flying his N.E.C.-engined Wright biplane.

Saturday was an exceptionally hot day, and not really a good one for flying, as the heat of the sun appeared to cause considerable upward trends of the air. Mr. Ogilvie was out first, flying a new Wright machine, which is of a size between the original Wright and the "Baby" Wright of 1910.

It was evident that the aviator was feeling the upward currents of air, but he had no difficulty in counteracting their effect by warping, and continued his flight for some 20 mins. or so. Later in the day Mr. Jezzi was out on the Jezzi biplane, making several flights and showing good progress.

Prof. Huntington was also flying at the same time, making straight flights across the grounds. On this day, too, the new Dunne monoplane was given its first trial. It is the same machine which was exhibited at the last Aero Show, being then in a partly unfinished condition. It is driven by a 50-h.p. Green engine, and showed considerable speed over the ground, it being apparently steered in a straight course quite easily. As usual with first trials, adjustments were found necessary, and the monoplane was returned to its shed.

On Whit-Monday Lieuts. Samson, Longmore, Gregory, and Gerrard were out early, the former flying to Sittingbourne and back before 7 a.m.

Towards 10 o'clock a number of people began to congregate at the entrance to the aerodrome, many of them having walked many miles on the chance of witnessing some flying. They were well rewarded, for seven machines were constantly flying during the day. At 6 p.m. a number of distinguished visitors arrived from Sheerness, including Rear-Admiral Grant, who was taken up by Lieut. Gerrard for a short flight on the Short No. 34. Admiral Grant thus achieved the distinction of being the first British Admiral to ascend in an aeroplane. He thoroughly enjoyed the experience, and on landing, expressed his surprise at the sense of security experienced whilst flying, and at the ease and sureness with which the aviator had piloted him through the air.

The crowning joy of the day was the arrival Mr. G. B. Cockburn, who took the opportunity offered by the holidays to pay a visit to see how his former pupils were progressing. He was unable to resist the offer of Lieut. Gerrard to ascend as his passenger, and went up for a flight which lasted fifteen minutes. Amongst other passenger flights was one by Lieut. Gregory, carrying Lieut. Crichton, of H.M.S. "Actæon," as passenger. During this flight, which lasted upwards of thirty minutes, H.M.S. "Actæon" and "Antrim" were both circled before the aviator headed for home, which he reached by way of the Medway and Queenborough, finishing up with a good *vol plané*.

Brooklands Aerodrome.

ON Tuesday of last week the wind dropped at 6 p.m., when Lieut. Snowden-Smith was out, as also Mr. Fisher and Mr. Spencer. Mr. Gordon-England took Mrs. Handasyde for a passenger trip ending with a magnificent spiral *vol plané*. Afterwards Mr. England was caught in a nasty squall but managed to bring the machine down safely. M. Versepuy was also piloting the Bristol, and Mr. Gordon Bell made a flight of a quarter of an hour on the Hanriot.

Pupils were out in the early morning of Wednesday and Mr. Manisty was making straight flights on the Hanriot. Mr. Jack Humphreys had a nasty spill with the Hanriot, mainly through over confidence. The wind getting up later put a stop to all further flying for the day. On the following day the only machine flying was the Bristol biplane, piloted by Mr. Gordon-England, who carried several passengers.

On Friday Mr. England and M. Versepuy were in the air, as also was Lieut. Snowden-Smith, but owing to the wind there was otherwise not much flying.

The Billings biplane was at work early on Saturday, both Mr. Billings and Mr. Percival piloting. Mr. Percival is showing marked improvement now, making half-turns at a good height. During the afternoon Lieut. Watkins brought out the Howard Wright, but the engine was still pulling badly. Mr. Gordon-England executed two really magnificent spiral *vol planés*, and Lieut. Snowdon-Smith was making sharp turns on his British-built Farman. The star performance of the day was Mr. Gilmour's arrival. Mr. Gilmour had started from Salisbury in the morning, but owing to the mists had to come down at Basingstoke. Stopping there during the day, he made a start for Brooklands during the evening, arriving over the aerodrome at a height of about 2,000 ft. Before coming to ground he executed some marvellous turns, both left and right-hand, banking to nearly 40°.

In the early morning of Sunday Mr. Pixton, who has now joined the Bristol Co., was up for his first trip on the biplane, seemingly quite at home although on a strange machine. During the afternoon, Mr. Blondeau, Mr. Gordon-England, and Mr. Pixton put in some good work, while Mr. Gilmour was kept busy passenger-carrying. Mr. Fisher was trying the Martin-Handasyde. The J.A.P. engine has now been refitted to this machine, but owing to the extensive oil shields the head resistance was found to be too great.

Whit-Monday was one of the most successful flying days Brooklands has yet had. Work started at 5 a.m. Mr. Fisher was again out on his Martin-Handasyde; the oil shields had been removed, showing distinct improvement to the flying of the machine, but owing to a solid stream of oil the pilot is quite unable to see in what direction he is going. Mr. Cody arrived from Laffan's Plain at 5.45 a.m., and half an hour later a machine was noticed making straight for the aerodrome at an altitude of at least 2,000 ft. This turned out to be Mr. Barber on the new racing Valkyrie. He had covered the 20 miles from Hendon in 20 mins., which speaks well for the speed of the machine. He landed with a graceful *vol plané*. In the morning Mr. Cody put up a flight of 64 mins. for the Manville prize. Excellent flying was witnessed by a big crowd during the afternoon. Mr. Raynham made a good flight on A. V. Roe's Farman, winning the Aggregate Time Flight, with Mr. Pixton on the Bristol second, and Lieut. Walker on the Howard Wright third. One regrettable feature of the day was Mr. Hubert Latham's bad luck on his Antoinette. The machine was noticed to heel over while turning over the sheds; one wing-tip touched, and one came down solid on the roof of the Martin-Handasyde hangar. Both machine and hangar were badly damaged. Mr. Latham attributes the smash to the failure of the warping control. He was out again later on, on the other Antoinette which Labouchere had been flying. Mr. Graham Gilmour delighted the crowd with some of his fancy turns carried out in fine style. Good flights were also put up by Gordon-England and Pixton on the Bristol, and Lieut. Watkins and Pecquet on the Howard Wright. Before starting back to Hendon, Mr. Barber gave a demonstration of high flying with both hands off the control, during which time the machine appeared to be very steady. Mr. Cody set out to return to Laffan's Plain during the evening.

Avro School.—Mr. Raynham, one of Messrs. A. V. Roe's promising pupils, won the Brooklands Endurance Prize of £50 on Bank-holiday, on one of their school machines, which is an encouraging start for a beginner. During the week, Mr. Louis Noel, a new pupil, has been flying, and promises well.

Unfortunately, the Avro biplane, which has been leading in the Manville Passenger-carrying Competition, which closes at 5.30, was not ready in time owing to some repairs. However, it was out soon after this time, and Mr. Conway Jenkins made a few flights, its speed, small size, and smart appearance being specially noticed by the spectators. At present the Cody is round about level with the Avro.

Lieut. Schwarn, of the Barrow airship, who had a trip on the 30-h.p. Avro, has ordered one of these machines, and intends to fit

it with floats for starting off and landing on water. This will be the second Avro built for marine work.

Mr. C. H. Pixton, one of the Avro pupils, has been engaged by the Bristol firm, who are evidently quick to recognize men of sound training.

Lanark Aerodrome.

ON Wednesday, June 1st, Mr. Ewen went for a cross-country flight to Huntly Hill, where he was forced to descend owing to engine trouble, and have his Blériot brought back to the hanger by road. On Thursday flying was confined to the aerodrome, whilst Friday and Saturday were too windy for work. On Monday Mr. Andrew Forson, of Glasgow, joined the school and took his first lesson in the hangar, while Mr. Ewen made several short flights. Tuesday was a beautiful day, and Mr. Ewen was flying almost continuously from early morning till dusk. During one of his flights he rose to 500 ft., and made for Huntly Hill, where he landed, and after tea returned to the aerodrome by way of the moor and Loch Woods.

Liverpool Aviation School, Sandheys Avenue, Waterloo.

ON June 1st Mr. A. Dukinfield Jones succeeded in making a complete circular flight to the left, being in the air 2½ minutes; he then made a partial circle to the right, but did not succeed in completing it. Next day, in a strong easterly wind, he made a succession of straight line flights, one of which was over a mile in length, at an average height of 30 ft. On Saturday Mr. Jones completed a circular flight to the left in a fair amount of wind, and made several other very successful straight line flights. Mr. Melly, the principal, was out in the two-seater later on in the day with Mr. A. L. Rathbone, member of the Liverpool City Council, as passenger. There was a very nasty wind blowing, which decided him not to go very far. He therefore landed after about 2 miles and then returned to the hangars. Later on Mr. Melly piloted the school Blériot and gave a fine exhibition of flying considering the nasty condition of the wind. On Sunday Mr. Jones was out again, this time making turns both to the right and left.

London Aerodrome, Collindale Avenue, Hendon.

Blériot School.—On Tuesday, the 30th ult. Mr. Salmet flew a few circuits, but as the wind was over troublesome he came down with a short *vol plané* from about 30 ft. Mr. Dyott, who is improving in a remarkable way, made a few straight flights, while Mr. Slack had some rolling practice.

On Wednesday the wind was aggressive at an early hour, and only Messrs. Dyott and Seaman were able to make a couple of straight flights each. Thursday proved also much too windy for air work.

Friday morning saw Messrs. Dyott, Slack, and Capt. Hamilton indulging in a little practice until the wind proved too strong.

Saturday last was an improvement, so that many pupils turned up and kept the school machines busy. Mr. Dyott, still progressing, made some very nice straight flights, whilst Messrs. Slack, Nathan, and Metford and Capt. Hamilton indulged in some rolling practice.

In the afternoon Mr. Hamel on the two-seater carried as passengers nearly all the pupils and several other people.

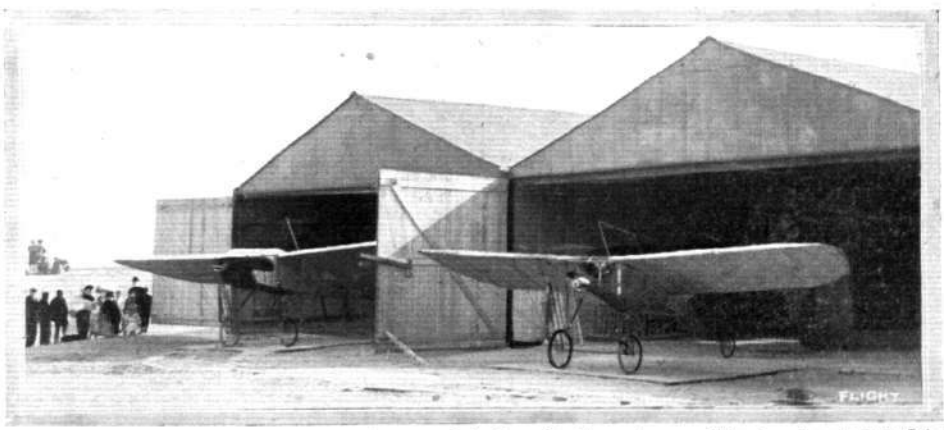
Whit-Monday was another very busy day, Mr. Henderson executing several circuits at heights varying between 100 ft. and 150 ft., each time coming to earth with a neat *vol plané*.

Messrs. Dyott and Seaman indulged in some straight flights, while Messrs. Nathan, Slack, and Metford, Capt. Hamilton and Lieut. Maunde Thompson confined their work to rolling practice.

Grahame-White School.—The Grahame-White hangars were astir early on Saturday morning, as Mr. Grahame-White had arranged to give an exhibition at the Ranelagh Club during the day, and it was necessary to have the machine there in readiness. Bringing out one of his Farman biplanes, he was soon off across country at a height of 500 ft., and it was not more than half-an-hour later when a telephone message was received saying that he had arrived safely. Throughout the morning Mr. Compton Paterson made several lengthy flights on a military Farman for the purpose of tuning and adjusting, at times reaching an altitude of well over 1,000 ft. At about 2 o'clock Mr. Grahame-White, having meanwhile returned from Ranelagh by car, took over the military type machine, and with Mr. Eric Maxwell as passenger set off once more for the Ranelagh Club's grounds. Quite a strong wind was blowing at the time, but in spite of this the journey was safely completed. Owing to the difficult nature of the ground, coupled with an uncomfortable breeze, Mr. Grahame-White did not fly until the early evening, when he made two superb flights, rising high above the Club's polo ground and descending in a *vol plané*. Later on he flew off home to Hendon on the military Farman, while Hubert took charge of the other machine and safely piloted it back home. Meanwhile at the aerodrome a large crowd had assembled to see the flying, and these Mr. Compton Paterson kept interested by his clever switchback flying. On Sunday work was in progress the whole day, both Mr. Grahame-White and Paterson treating the crowd to some really brilliant trick flying. During the evening Mr. Paterson with a passenger flew over Harrow at a great altitude.

Quite 4,000 people assembled to see the flying on Whit Monday, and Paterson gave a passenger-flight on the Farman at about ten o'clock. From that time until dusk it was almost impossible to mention an occasion when a machine was not to be seen in the air. Passenger flights were in great demand, no less than 20 being booked during the afternoon. Of these, Mr. Paterson carried twelve in succession, no mean performance, and Grahame-White was an excellent second, his hair-raising *vol planés* and right-angled turns finding much appreciation with the crowd. The military Farman machine was much in evidence during the evening, and it was upon this that Mr. Grahame-White took his mother and sister together for a long trip over the surrounding country. Hubert also made several good flights throughout the day, both with and without passengers. It was unfortunate that Clement Greswell was absent; his pretty flying on the Gnome-Blériot was much missed. An old pupil, Ridley Prentice, made eight circuits of the ground at 300 ft. high.

Valkyrie School.—The Valkyrie School machine was out early in the morning of Saturday last and was busy for several hours, Messrs. Wells, Perry, and others making satisfactory progress and putting in a lot of good practice. Lewis Turner, the new school



The two hangars erected by the Liverpool Aviation School at Sandheys Avenue, Waterloo, showing the School machine and the two-seater Blériot on which Mr. Henry G. Melly, the Principal of the School, recently accomplished the circuit of Liverpool and Birkenhead, as recorded in FLIGHT.

instructor, also made a number of flights on the school machine and then took out "Valkyrie II," the big passenger-carrier, with which he made two good flights. Late in the afternoon Messrs. Wells, Perry, Gaskell and other pupils were all taking lessons. The Valkyrie designer then piloted the new type "B" military monoplane and put up a magnificent flight of nearly 40 minutes. Ascending to a height of from 2,500 ft. to 3,000 ft., he descended by one of his well-known spiral *vol planés*, and then, switching the engine on just before reaching the ground, he executed two complete circuits with both hands off the controls and above his head. Two more flights were made during which heights of about 2,000 ft. were reached and numerous evolutions carried out with great steadiness.

On Sunday the type B Valkyrie was in the air again for the purpose of testing a new compass for cross-country work. Reaching a height of about 1,500 ft. the pilot made straight for Harrow, and was pleased to find that his compass was everything to be desired. Returning to the aerodrome he carried out numerous *vol planés* and other evolutions before descending.

Promptly at 6.15 a.m. on Whit-Monday Mr. Barber, the designer of the Valkyrie monoplane, ascended on the type B military monoplane, and after circling the aerodrome twice, during which time he rose to about 1,000 ft., he waved his hand to the onlookers, and steered straight for Brooklands, 20 miles away. Unfortunately it was extremely misty, it not being possible to discern landmarks more than two miles away, so that he had to rely entirely upon the compass, which had been fitted for the first time the day before. Most of the journey was made at a height of 3,000 ft., about twice the height of any other flight of the day, and after 18 minutes had elapsed Brooklands track appeared through the mist. He descended by means of a spiral *vol plané* at 6.35, the trip having taken exactly 20 mins. The air being absolutely calm, this trip proved a very good test of the machine's speed, which appears to work out at 60 miles an hour. In the afternoon he put up a fine flight of 25 mins., during which he ascended to a height of about 1,500 ft. or more, and carried out various evolutions, including a complete circuit, with hands off the controls and above his head. At ten minutes past seven he ascended for the return journey home, and after two circuits, during which he rose to a height of 1,200 ft., he headed straight for Hendon. The evening was again very misty, but the compass proved of invaluable service. Most of the trip was made at a height of 4,000 ft. and after 30 mins. had elapsed the machine was over the Hendon Aerodrome. Mr. Barber then at that height shut off his engine completely, and made a steep *vol plané* to earth, landing in perfect style within 30 yards of the crowd. A stiff head wind blowing accounted for the return journey taking 30 mins. to accomplish.

Salisbury Plain.

ON Wednesday of last week the Air Battalion was busy, Capt. Burke flying the Farman biplane, while Lieut. Cammel on the 70-h.p. Gnome-Blériot was up at a great altitude. At the Bristol School work was confined to the hangars until the evening, when M. Jullerot took a trip on the machine he brought back from India. Afterwards he made six flights with pupils, while Mr. Hotchkiss carried five. Mr. Brereton and Mr. Pepper were both out rolling, and Lieut. Montefiore made a good flight across country, making right and left-hand turns. The Australian pupil, Mr. H. Busteed, also made a fine trip across country. At one time there were five machines in the air at once, including Capt. Burke's Farman and Lieut. Cammel's Blériot, the latter carrying a passenger. On Thursday morning the Bristol School commenced work at 4 a.m., when M. Jullerot started off on a cross-country trip on the military extension machine. On landing he took Messrs. Brereton and Pepper on board and made another trip, while Mr. Hotchkiss made a couple of flights in a puffy wind. Lieut. Montefiore again ventured across country, and was flying for three-quarters of an hour. After breakfast Capt. Fulton, Capt. Burke, Lieut. Cammel and Lieut. Reynolds were all up making good flights, Lieut. Cammel being in the air for 40 minutes on his Blériot. In the evening, M. Jullerot was up eight separate times, carrying out quick trips across country. Mr. Hotchkiss paid a visit to the H.A.C. camp by way of the air. The pupils were again busy quite early on Friday morning, when instruction was given by M. Jullerot, afterwards work being continued during the day in the sheds. Various officers of the Air Battalion put in a good deal of flying, while some considerable time was spent in testing engines. Capt. Fulton and Capt. Massy were flying the Bristol military extension biplane. Mr. Pizey returned from Bristol after an absence of a few days, and started work almost at once, taking two friends for a long flight to North Down Camp, about eight miles away, where they had some refreshment, and then started off back to the hangar. Owing to the soldiers knowing very little about the machines, Mr. Pizey had to start the propeller himself and then hop into his seat quickly. He landed at the Bristol headquarters at a quarter past nine. Mr. Hotchkiss and Mr. Busteed each put in some good air work, and Mr. Graham Gilmour, after indulging in some trick evolutions, headed off at a height of 2,000 ft. for Brooklands, which he reached safely. In all fourteen flights were made during the day, work finishing at half-past nine. On Saturday morning M. Jullerot and Mr. Hotchkiss were out early with pupils, as also was Mr. Pizey, the latter afterwards carrying Mr. Watts and Mr. G. Little, the total weight of the pilot and two passengers being 31 stone. The military extension Bristol machine, however, stood up against this load without a falter. The officers of the Air Battalion were also busy, and put in a lot of good useful flying. The Bristol instructors also had little time to spare during the evening, Mr. Pizey taking some of his passengers to a height of 1,400 ft., whilst Busteed made a cross-country trip for 20 mins., and also steered some left- and right-hand turns. On Sunday evening Mr. Pizey was flying at a height of well over 1,000 ft., and took up Col. Smeton, a new pupil. During the evening seventeen flights were made, Mr. Pizey being responsible for seven, M. Jullerot for five, Mr. Hotchkiss for three, and Mr. Busteed for two. Mr. Pizey was first out on Monday morning, again with Col. Smeton. Mr. Pepper, who is making remarkable progress, successfully carried out a couple of circular flights at a height of about 100 ft., while Mr. Busteed went for a cross-country trip. During the evening the Air Battalion Officers were busy, and Capt. Fulton made a couple of passenger flights, first taking up a brother officer and then his late mechanic, H. H. Bannister. M. Jullerot and Mr. Hotchkiss were also up while Lieut. Cammel was flying his Blériot at a height of 2,000 feet. Mr. E. H. Clift was at Salisbury Plain fitting his compasses on the Bristol military extension machine, as well as to Lieut. Cammel and Lieut. Barrington-Kennett's machines.

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General Roques on Military Needs.

IN the course of a recent interview General Roques, Inspector-General of the French Army Aviation Corps, gave it as his opinion that the progress made by aviation was satisfactory. He thought, however, that attention should now be directed to constructing an aerial machine which should be capable of treating wind eddies as ocean liners treated currents which would wreck small boats.

Lieut. Menard's Tour of France.

LEAVING Rochefort on the 31st ult. with the intention of continuing his tour of France, Lieut. Menard was compelled to land at Ambares, about 12 kiloms. from Bordeaux, for a small adjustment to the motor. Unfortunately he landed in a field where the grass was somewhat long, and, catching in the wheels, it capsized his machine. Neither the aviator or his companion were hurt and although the damage to the machine was not serious the flyers were unable to continue their journey before Saturday last. When starting in the early morning the propeller struck a tree and was smashed. This was replaced and at a quarter past seven a fresh start was made, the Croix d'Hins aerodrome at Bordeaux being reached forty minutes later. The following morning a non-stop flight was made to Pau. On the way the officers were surprised by a squall at Aire sur Adour, but weathered it by descending from 700 to 300 metres.

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The "Adjutant Vincenot" out for an Hour.

THE new Clement-Bayard dirigible "Adjutant Vincenot" was out on the 31st ult., and cruised for about an hour in the neighbourhood of La Motte Breuil and Compiegne. In all it carried eleven passengers, of whom two were military officers.

Speed Trials with "Clement-Bayard IV."

FOR about two hours on the 3rd inst., the "Clement-Bayard IV" was kept running over a circular course, and maintained an average speed of about 50 k.p.h. On the previous evening some altitude tests were carried out, the greatest height attained being 900 metres.

Another German Dirigible Wrecked.

THE first appearance of the "Ruthenburg," which has been built on the Siemens system, was a disastrous one. Leaving its shed at Joenis, near Krefeld, the airship was caught by a squall when at a height of 300 metres, and the steering apparatus was strained so badly that it was rendered useless. Being unmanageable the airship was at the mercy of the elements, and, as a result of the buffeting by the wind, several of the stays attaching the hull to the envelope were broken, and eventually the envelope doubled up, allowing the airship to fall to the ground. Fortunately the two passengers escaped without injury, but the airship itself will have to be practically rebuilt.

FOREIGN AVIATION NEWS.

French Aeronautical Salon.

IT has been definitely decided by the Chambre Syndicale des Industries Aeronautiques that the Third Annual Aeronautical Salon is to take place at the Grand Palais from December 8th to 25th.

Gordon-Bennett Aviation Race.

SPECIAL regulations have been drawn up for governing the French Eliminating Trials for this event, and those wishing to qualify for representing France must compiy with these by June 20th. The tests will be over a distance of 150 kiloms. in a closed circuit of a maximum course of 5 kiloms. The selection will be made from the pilots putting up the best time over this distance. Each pilot may make as many trials as he likes, the expenses connected with timing, &c., being at the aviator's cost; and if selected to take part in the race itself, only machines of the same make and type as that on which the Eliminating Trial was made, in conjunction with the same type of motor, may be used. Before finally selecting the representatives, it will be a condition that the chosen pilots shall in ample time proceed to England with their machines for the purpose of preparing for the event.

Pau to Paris by Aeroplane.

UNDER the direction of Lieut. Princeteau, Capt. Echeman and Lieuts. Malherbe, Ducourneau and Gouin left Pau on the 3rd inst. with the intention of flying to Paris. Each officer is mounted on a Gnome-engined Blériot monoplane, and the five were away from the Pau Aerodrome within a space of twelve minutes. Capt. Echeman made a stop at Podensac for petrol, and in coming down seriously damaged his machine. Lieuts. Ducourneau and Gouin landed at the Croix d'Hins Aerodrome at Bordeaux, but Lieuts. Malherbe and Princeteau continued on to Libourne, where they were joined the following day by Ducourneau and Gouin, the latter making a stop at St. Saviol. On Monday Princeteau, Malherbe and Ducourneau flew in company to Poitiers, the journey taking 2 hrs. 25 mins.

The Mystery of Lieut. Bague.

UP to the time of going to press the mystery surrounding the fate of Lieut. Bague is unsolved, and grave fears are entertained as to the safety of the aviator, whose rashness in starting from Nice on the long trans-Mediterranean trip to Tunis without any precautionary preparations has probably led to disaster. Before starting Lieut. Bague refused the offer of a torpedo boat escort, and had no compass fitted to his machine. He carried, however, a basket of carrier pigeons on his machine, but so far none of these have returned to Nice. Keeping his intentions secret until the very last minute, Lieut. Bague set out from Nice at five o'clock on Monday morning and hoped to make a halt at Calvi (Corsica), about 130 miles away. From there he intended to fly on to Ajaccio and then to Sassari (Sardinia), Gagliari, and Vizerta to Tunis.

A Long Flight on a Caudron.

COMPETING for the Quentin-Bauchart prize on the 22nd ult. a very fine cross-country flight of 200 kiloms. was made by Emile Marie Duval. Leaving Crotoy at 4.24 p.m. he passed over Abbeville, Amiens, Chaumont and Chantilly, landing at Issy at 6.37. This was Duval's first long cross-country flight, and speaks well for the stable qualities of the Gnome-engined Caudron.

A Pianist in the Air.

THE musical profession seems to be especially fascinated by aviation, and among those who enjoyed flights at Issy on the 25th ult. was the well-known French pianist Camille Arencibia, who went for a trip with Colliex on one of the new Voisins.

The Voisin Hydro-Aeroplane.

ON the 25th ult., the special Voisin biplane of the Canard type, which has been built for Prince Bibesco and equipped with floats for rising from and descending on to the surface of the water, was tried on the Seine in the neighbourhood of Billancourt. Piloted by Colliex, the machine first glided for a distance of about 100 metres, and then rising from the water flew for about 500 metres, being stopped by Colliex as it approached the Auteuil Viaduct. The trials then had to be suspended, as the ferry boats rendered it impossible to continue.

The French Government and Aviators.

IT is a very pretty and encouraging habit of the French Chamber of Deputies to convey their appreciation of really meritorious acts almost immediately to those who have shown special prowess in any particular direction. Last week MM. Vedrines and Conneau were in this manner honoured for their splendid aerial journeys, the Minister of Justice announcing that the Government were very pleased to be associated in conveying to those pilots their very heartiest appreciation of their work, as helping forward the progress generally of France, and particularly in regard to its advance in science.

Vedrines Back in Paris.

ON his return to Paris on the 31st ult., Vedrines, the winner of the Paris-Madrid race, was given a very rousing reception. He was welcomed on behalf of the Minister of War by General Roques, and was entertained at a banquet by the Aero Club of France, which has also awarded him a Special Gold Medal.

Vedrines and Paris-Madrid.

ON the 2nd inst., the Commission Sportif of the Aero Club of France had before them the protest of M. Blériot in regard to the classing of Vedrines for the first section of the Paris-Madrid Race. They decided that, in regard to the neutralised time which they had already announced, following the disaster to the French Minister of War at the start at Issy, this, under all the circumstances, must stand, but the question of Vedrines having re-started on an entirely different machine was left in abeyance.

From Buc to Chartres.

ON Saturday last the flying-ground at Chartres was visited, by way of the air, by three flyers. Capt. Grailly and Amerigo flew over from Buc on their R.E.P. machines, while Capt. Eteve, on his Farman, passed over the flying ground but did not stop. He made the round trip from Satory to Chartres and back. On Sunday morning Capt. Grailly and Amerigo returned on their machines to the R.E.P. headquarters at Buc.

First Pommery Cup Award.

A FORMAL award of the first monthly prize has been made in connection with this competition by the Aero Club of France in favour of M. Vedrines, for his flight of 293 kiloms. on April 30th.

Aviation Motor Competition Postponed.

THE French tests for aviation motors which are being promoted by the L.N.A. have been postponed from July 1st to October 2nd, entries and fees being in like manner postponed until September 1st (200 fr.) and September 1st to 15th (400 fr.).

Carrier Pigeons on an Aeroplane.

CONTINUING his experiments at Douai with the Breguet military type biplane, Lieut. Ludman, on the 30th ult., carried up a number of carrier pigeons, which he released while flying at a good height. At one time there were three officers in the air on Breguet machines — Lieuts. Ludman, Gourlez and Migaud. Debussy was also out on the 100 h.p. machine testing a four-bladed

A memento tablet to commemorate the first German Aircraft Parade before the Kaiser in Bad-Homburg.

propeller which had been fitted to it. On the following day, before a military deputation, Breguet was flying on the 100-h.p. machine with four passengers, and his speed was timed unofficially to be 100 k.p.h.

Testing a Panhard Engine.

ON the 30th ult., at Buc, Barra was flying for an hour and a half on a Maurice Farman machine which had been fitted with a Panhard engine. Maurice Farman took up several passengers, among them M. de Freminville, one of the directors of the Panhard firm.

Altitude Tests at H. Farman School.

A MILITARY deputation visited the Henry Farman School at Mourmelon on the 30th ult. and witnessed flights by Henry Farman on his latest small machine, while afterwards Bill made exhibition flights both on the "Baby" machine and also on the large military-type biplane. Then Fischer and Loridan took their places on two separate machines of the same type as that being used by Lieut. Menard in his tour round France, and mounted to a height of 1,200 metres in 10 mins. The amount of petrol consumed was between 3 and 4 litres.

A Weight-Lifting Prize.

OF a most useful type is the prize which the General Council of Algeria has decided to offer as a memorial to the late French Minister of War, M. Maurice Berteaux. The prize is of a value of £10,000, and it will be awarded to the first aeroplane which shall cover 500 kiloms. without a stop, carrying 1,000 kilogs. of war material. The prize will be known as the Prix Berteaux, and will be competed for in Algeria. It should do much to encourage the designing and building of a useful type of machine, and it is to be hoped that some such prize may be offered in this country.

The Clement-Bayard Monoplane.

PILOTED by Deletang very good results are now being obtained at Issy with the Clement-Bayard monoplane, details of which were illustrated in our issue of April 29th last. A special feature of this machine is that the framework is entirely built up of steel tubes. It is now fitted with a Gnome rotary motor.

A Venerable Enthusiast.

MR. FREDERICK WOOD, who for fifty years was associated with the Board of Trade, has recently, at the age of 72, been taking lessons in aviation from Mr. Maurice Farman. Last week-end he was in the air with Mr. Farman at Buc for an appreciable time, and affirms that he felt after the experience quite young again.

Flying Meeting at Lyon.

SOME very good flying was witnessed at Lyon during the latter part of last week. During the first day, Thursday week, Legagneux flew 272 kiloms. for the day, and other lengthy flights were made by Hanriot and Desparmet, while Mme. Jane Herveu also was seen at the wheel of her monoplane. On the following day Robinet was flying, in addition to the above, and on Saturday and Sunday Kimmerling was in the air making various trips on his monoplane and biplane.

A New Lady Pilot.

THE first lady to qualify for her pilot's certificate under the new "figure 8" conditions is Mme. Drancourt, who made the necessary tests on a Caudron biplane at the aerodrome at Rues on the 5th inst. She made the figure 8 flights at a height of 100 metres.

Mdlle. Polaire in the Air.

AT Buc on Monday, Mdlle. Polaire, the well-known French music-hall artiste, was given her first experience in the "central blue" on an R.E.P. monoplane. On descending, she declared the experience was a most enchanting one, and was eager to have a further trip.

At the Deperdussin School.

REMARKABLE success is being attained by the pupils at the Deperdussin School at Betheny. On Monday Lieut. Depres, who had only been at the school 18 days, qualified for his certificate, and made a flight of three-quarters of an hour's duration. A soldier, Issatier by name, obtained 20 days' leave from his regiment to learn flying, and he passed for his *brevet* in 14 days. Four pupils have been taught and have obtained their certificates on the Anzani-engined school machine without so much as splintering a single part.

Flying Home for the Holidays.

HAVING decided to spend his Whitsuntide holiday with his wife's parents at Samois, Tabuteau packed his portmanteau on to the framework of his Bristol biplane, and, with his wife seated behind him, set off from Buc on Sunday morning to fly there. After an hour's flight he safely reached his destination without incident, and on Tuesday morning he flew back, with his wife, to Buc.

The Blériot Memorial at Calais.

THE memorial which is to be erected at Les Baraques, on the spot from whence M. Blériot started on his epoch-making flight across the Channel, is to be useful instead of merely ornamental. It is, in fact, to take the form of a landmark for other cross-Channel flyers, and will consist of a wooden tower 450 ft. high and 15 ft. square at the base. In order to make it distinctive it will be tessellated, so that it may be readily discerned from altitudes of 1,500 to 2,000 ft.

Over the Copenhagen Sound.

SEVERAL times the Copenhagen Sound has been flown across by Danish and Swedish aviators, but on Sunday a Frenchman succeeded in the same feat, he being moreover accompanied by a passenger. After giving an eight days exhibition of flying at Malmoe, Poulain decided to make the journey, and taking a Danish journalist with him he started from Jaegersoe, just by Malmoe in Sweden, on Sunday evening. Nineteen minutes later he landed safely at the Amager flying ground close by Copenhagen, where Svendsen and Cozic were making flights.

Serious Accident to Taddeoli.

AFTER making a very satisfactory cross-country flight of 80 kiloms., from Viry to Lausanne, in 55 mins., on his new Morane monoplane, on the 31st ult., Taddeoli remained at Lausanne giving exhibition flights. After flying over the town on Monday last, he was descending to his flying ground when his machine capsized and fell to earth, the pilot sustaining serious injuries. Taddeoli was the first Swiss pilot to obtain a Swiss certificate, making the qualifying flights on a Dufaux machine last autumn.

First Qualified Spanish Pilot.

IN regard to the statement that Senor Campana was the first Spaniard to obtain his certificate, M. M. Villanueva, writing from Madrid, gives us the information that Senor Laygorry was qualified last summer, he flying at San Sebastian, Madrid, and several other towns.

World's Passenger Height Record.

ON Tuesday, at the Johannisthal meeting, Hirth, with a passenger, rose to a height of 1,580 metres, thus beating the world's passenger height record.

A Bristol at Pretoria.

A CABLEGRAM from South Africa announces that on Sunday and Monday last some very fine flights were made round Pretoria by Joseph Christiaens on his Bristol biplane. The flights aroused an enormous amount of enthusiasm, and should go a long way to creating practical interest in aviation in the Transvaal.

A Fatal Accident in Brazil.

AS a result of severe injuries sustained in a fall in his monoplane at San Paulo on the previous Thursday, the Brazilian aviator Queiroz died on Saturday last.

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PARIS—ROME—TURIN.

IN our last issue were just able to briefly announce that "Beaumont" was the first to actually arrive at Rome on Wednesday of last week. He made a magnificent flight from Nice, after having had a new motor fitted to his machine. A quarter of an hour's trial flight was indulged in as soon as the mechanics had finished their work, and then he set off at 3.57 a.m. He landed at Genoa at 6.47, and an hour later started off once more for Pisa, where he arrived at 9.40, landing on the horse racecourse in error. Realising his mistake, he afterwards restarted the machine and flew over to the proper aerodrome, where he landed an hour later. At ten minutes past twelve he left for Rome, and landed in the precincts of the Eternal City at eight minutes past three, his passage over the city being witnessed by His Holiness the Pope and Cardinal Merry del Val from a balcony of the Vatican.

Garros made a move from Pisa at 4.35 a.m., but had only progressed 60 kiloms. on his journey when he was forced to make a landing at Castagneto-Carducci. In coming down very suddenly from a height of 200 metres the machine was very badly smashed. Frey continued his journey from Genoa to Pisa, but in alighting at the latter place smashed his propeller and also damaged the chassis of his machine. Of the other competitors, Vidart advanced from Avignon to Nice, while Bathiat was brought down by motor troubles at Macon, after covering the 110 kiloms. from Dijon in 54 mins. Lieut. Lucca succeeded in getting from Lyon to Avignon.

PARIS-ROME.—"Beaumont" (Lieut. Conneau) arriving at the Rome Aerodrome.

On the following day Garros continued his journey, and succeeded in finally reaching Rome, after making a stop at Castiglione, close by Grossetto, for petrol. Vidart also left Nice on his Deperdussin monoplane, flying well, and continued on to Genoa and Pisa, hoping to complete the journey to Rome the same day, but as a result of the damage done in a faulty landing at Cecina, about 20 kiloms. from Pisa, he was obliged to postpone his departure for Rome. Kimmerling, having received a new Sommer monoplane, started from Brignoles, and managed to get as far as Cabasse (Var), where the machine capsized. Bathiat continued as far as Lyon; Lieut. Lucca went on from Avignon to Hyeres, and Lieut. Clavenad to Griseu. On the 2nd inst. no change took place in regard to the position of the actual competitors, but in trying to start from Hyères Lieut. Lucca's machine fell from a good height, the pilot and his passenger being badly hurt.

On Saturday Frey continued from Pisa and reached Rome, whilst on Monday Vidart was also able to continue his journey and reach Rome. All the rest of the original competitors had by this time abandoned the race.

Vedrines, however, on Tuesday morning was on the warpath, and made a start in an endeavour to catch up the other competitors and take part in the final stage to Turin. He hoped to fly from Paris to Rome in one day. These hopes were doomed to speedy disappointment. Leaving Buc at 3.35 a.m. he reached Macon at 9.15, having stopped on the way at Dijon. In landing, however, the machine capsized, and was so badly smashed that Vedrines decided not to continue.

The net result of the race from Paris to Rome is therefore: 1. "Beaumont" (Blériot monoplane), 82 hrs. 5 mins.; 2. Garros (Blériot monoplane), 106 hrs. 16 mins.; 3. Frey (Morane monoplane), 132 hrs. 41 mins; Vidart (Deperdussin monoplane), 171 hrs. 13 mins.

The amounts won to this point are "Beaumont," 109,000 frs.; Garros, 45,000 frs.; Frey, 23,000 frs.; Vidart, 20,000 frs.

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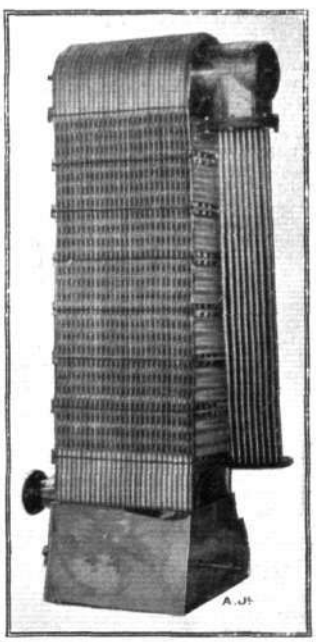
THE ZIMMERMANN BALLAST GAINER FOR AIRSHIPS.

CONSIDERING how much is done to reduce weight in every corner of the mechanical side of aviation, the idea of an apparatus for making weight may, to the uninitiated, seem rather extraordinary. Anyone who has studied the problem of airships, however, will have realised that a serious difficulty in aerial navigation is introduced by the constant loss of ballast that takes place through the consumption of petrol. It is a very common error to overlook the weight of fuel in matters of this sort, as may readily be realised by making a rough estimate of amounts. For instance, a 100-h.p. engine using 0·6 pint of petrol per h.p. per hour will consume 7½ gals. an hour, and if working at full load for four hours will have used 30 gals. Roughly speaking this will amount to a loss of weight of 210 lbs., which is obviously a very serious item to be contended with by those in charge of the dirigible.

Various means have been proposed for compensating for this loss of weight, but perhaps the most interesting is that associated with the apparatus illustrated herewith. This is a device, built by the Motor Radiator Co., of Park Side, Coventry, the well-known makers of the Zimmermann radiator, for condensing the exhaust, and it is claimed that as much as 97 per cent. of the weight of the fuel can thus be recovered in water. In the proper combustion of a hydrocarbon, like petrol, in air, the principal product of the exhaust is the water formed by the chemical combination of the hydrogen in the fuel and the oxygen in the air. Needless to say, the water is emitted as vapour in the heat of the exhaust and the object of the Zimmermann ballast gainer is to trap the water by condensing the vapour before it is discharged into the atmosphere. The apparatus is composed of corrugated tubes of flattened section for the greater part of their length. They are set edge on to the air and the currents that flow between them are still further broken up by numerous fine fins arranged in the interstices between the tubes; the tubes terminate in a box tank, which receives the liquid of condensation. The dimensions of the ballast gainer illustrated, which is for a 40-h.p. engine, are 54 inches in height by 18 inches wide, excluding the external down-comer tubes, which measure ten inches across. The weight is 97 lbs., and the guaranteed minimum of ballast recovery is 90 per cent., which on the preceding basis would be equivalent to 21 lbs. per hour. It is, of course, important to observe that this high percentage recovery is in reality due to the fact that the oxygen in the chemical composition of the water has been supplied from the atmosphere and is not, therefore, reckoned in the original weight.

It is, of course, obvious that if the possible recovery of ballast reaches such a high percentage the problem almost solely resolves itself into making the apparatus as light as possible without detracting from its efficiency.



CORRESPONDENCE.

**** *The name and address of the writer (not necessarily for publication)* MUST *in all cases accompany letters intended for insertion, or containing queries.*

Correspondents communicating with regard to letters which they have read in FLIGHT, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—*Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.*

Flight of Birds.

[1204] *Re* flight of birds, much has been written on the gull's flight, and I think the flight of other birds is worthy of notice. Pigeons glide with a large dihedral angle, and are very steady. Swifts with a large negative dihedral angle, and are very unsteady. Swallows and starlings glide with a slight negative dihedral angle.

The negative angle gives less stability but a greater lift, and therefore birds, which do not need stability so much, being used to flying, use the negative angle. Birds' wings differ greatly. Here are sketches of a few :—

1, Swallows; 2, Swifts; 3, Lapwings; 4, Larks; 5, Rooks.

Most birds' wings seem to have a negative angle of incidence at the tip.

Headingley. R. WOOD.

The Hendon Demonstration and its Lessons.

[1205] The recent demonstation which took place at Hendon and also various other events which have been recorded in your paper, provoke me to write to you words which, though perhaps at first sight disparaging and pessimistic, are, I can assure you, written solely with the object of yet further advancing the progress of flight. It appeared to me that your description of the Hendon demonstration was rather vague and possibly not quite accurate. I had read so many accounts of it in the various papers that one could not be sure whether it was a highly successful and fashionable private meeting, an excellent advertisement for certain firms, or a genuine display of the capabilities of the military aeroplane. I admit its undoubted value in stirring up the official world because that body has apparently so much to learn in a very short time, but I read, for instance, that the bomb dropping, however effective at first sight, was entirely unconvincing as the aeroplane was during these tests well within range of rifle or Maxim gun, and also that the quick assembly tests were slightly marred by the fact that the machine could not be induced to fly.

These small details and an inspection of the various types of machine used, lead me to suggest that Major Sir Alexander Bannerman was not so far from the truth in his speech at the Royal Aero Club dinner when he remarked that he did not consider that the aeroplane had advanced much since the time when Wilbur Wright first flew in France. These words caused a good deal of comment in all the papers, but I venture to submit that practically all the wonderful progress that has been effected since that time has been due almost entirely to the aeroplane engines, and particularly to the skill of the pilots. Putting aside the improvements to the Wright machine as a small step in the right direction, it is clear that except for a few minor improvements in constructional details, the single-seater Blériot and the Farman biplane are almost identical with those that were flying successfully in the hands of novices very soon after Wright's experiments in France. I believe that Mr. Grahame-White could safely carry Mr. Balfour, and also perform his exhibition flights on one of Farman's earliest machines if it was fitted with a Gnome engine, and a similar remark applies to Mr. Hamel's skilful flight to Aldershot. I am not speaking of other machines which may be put in a higher class owing to their later development, but nevertheless I would insist that the aeroplane *per se* is very much in its infancy, and that we have at this present moment suggestions available for its immediate improvement. The photo of the latest Farman biplane chances to appear as an example of what I mean. Here we see that this well-known designer is at last beginning to realise the importance of several points in aeroplane design which as well as many others may be to-day obtained from the works of F. W. Lanchester. I refer to the need of high aspect ratio of all controlling members, and the tail to act purely as a directive organ, &c. Do the designers in England, for instance, who have copied this design realise that a greater part of what is so often passed over as "theory" can be applied *now* in a practical manner to existing designs. There are indeed very few machines which could not be improved upon, as far as longitudinal and lateral stability is concerned, by means of the equations set forth in Mr. Lanchester's books. I fear that some of our leading firms will shortly either lose business or be compelled once more to be led. Mr. Lanchester's books teem with suggestions, and I trust that when soon many of them are embodied in improved aeroplanes, the praise due to him, at least in England, will be forthcoming. It is instructive to note how designers are almost weekly falling more into line with his theories, when they might have been adopted at least three months ago. I shall be told that this is the method by which reliable designs are slowly evolved, to which I will agree, but I will conclude by suggesting that the eulogies of the leading flight paper may be when necessary directed to the engines, and in particular to the pilots, and not as yet so much to the aeroplanes themselves. Aviation has progressed, and is progressing wonderfully, but we can even now make better machines than those that, for instance, perform at Hendon.

Barrow-in-Furness. HAROLD D. BOULTBEE, B.A.

Aeronautical Books at Public Libraries.

[1206] Thinking that perhaps some other persons at Southsea, without very long purses, may be interested in aviation, I enclose a list of aeronautical books which can be obtained at the public libraries in or near Southsea.

You will notice that there are twelve different books, with a total value of about £5, not much to a rich man, but a good deal to a working man or a schoolboy.

CENTRAL. TOWN HALL SQUARE.

36626 "Aerial Navigation." Valentine and Tomlinson.
46188 "Art of Aviation." R. W. A. Brewer.
46176 "Flying Machines." Rankin Kennedy.
46163 "How to build an Aeroplane." R. Petit.
46197 "Model Balloons and Flying Machines." J. H. Alexander.
46249 "The Theory and Practice of Model Aeroplaning.' V. E. Johnson.
37222 "The Dominion of the Air." Rev. J. M. Bacon.

And in the Reference Department :—

6375 "All the World's Airships" (1909). F. T. Jane.
1801 "Astra Castra." Hatton Turnor.
6360 "Highway of the Air."

VICTORIA ROAD BRANCH.

10546 "The Dominion of the Air." Rev. J. M. Bacon.
59 "Flying Machines." Rankin Kennedy.
11827 "My Airships." A. Santos-Dumont.

CARNEGIE LIBRARY.

122 "The Dominion of the Air." Rev. J. M. Bacon.
11007 "The Art of Aviation." R. W. A. Brewer.

NORTH END BRANCH.

9319 "Aerial Navigation of To-day." C. C. Turner.

A large number of specifications of patents can also be obtained at the Central Library, on applying for Class IV.

Southsea. "SEALARK."

Gliding Descents.

[1207]. I would like to point out a source of danger in the design of many aeroplanes.

If an aviator indulges in a steep *vol plané* at high speed, and when nearing the earth puts his elevating planes hard up to bring the machine into a horizontal position, the machine will not follow the curved path as indicated by the disposition of the plane surfaces, but, owing to its momentum, will continue for some time to follow its original direction. The effect of this action is to alter the application of pressure on its surfaces, and the supporting planes, instead of meeting the air with a small angle of incidence, will meet the air in an underside-on position, so to speak, drifting forcibly downwards away from its normal axis of flight. It is easy to see that under these circumstances the wing warping, or other like stabilising device, which may be quite effective while the machine is meeting the air with its angle of incidence normal, will be quite ineffective, in fact, in exaggerated cases their action may be actually reversed,

that is, the more one side may be warped down the less the vertical pressure produced on its underside.

We know that it is a practical impossibility to design the wings so that when falling vertically with the flight axis in a horizontal position, the pressures on either side are in perfect balance, and we in addition know that practically all machines are driven by a single propeller, necessitating either the centre of gravity being shifted to one side of the centre of pressure, or a certain degree of wing warping continually applied to balance the reactive torque of the engine; it is, therefore, clear that in either case, under the circumstances of drifting underside on to the air, a powerful upsetting couple is produced which the pilot is unable to counteract, the result being that the machine is turned over sideways and comes down violently on one wing tip.

The natural means, to my mind, to ensure against this happening is to design with sufficient dihedral angle between the wings to produce a righting couple more powerful than the aforesaid upsetting couple, when the machine cants sideways.

I may say, in conclusion, that I have no record of a machine with dihedrally arranged main planes coming to grief in this manner, but there have been a good many cases of machines with flat planes behaving so.

BELTON T. HAMILTON, M.I.A.E., A.M.I.Mech.E.

MODELS.

Wright Model.

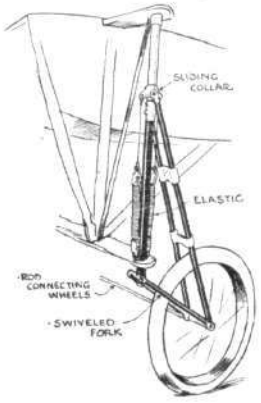
[1208] I have recently constructed a model Wright aeroplane with two propellers which both turn the same way. When the model is launched it flies for about two yards and then turns over two or three times before coming to the ground. I have been told that if I could make one propeller turn to the left and the other to the right it would fly. Would you kindly tell me through the medium of your valuable paper, FLIGHT, how to do this.

Dorking. WILLIAM GOLDING.

[Assuming that you use elastic motors you must obtain a left handed propeller (*i.e.*, one cut in the reverse sense to those now used) and of course wind up the elastic the other way. On the real machine one of the chains is crossed.—ED.]

Model Blériot.

[1209] In FLIGHT, December 31st, you gave scale drawings of a Blériot two-seater monoplane. Now although the photos are very clear I do not understand the front landing chassis. Fastened to the two wheels are two forks, and what I want to know is, are these forks fastened to the two castors which, I think, slide up and down the tube which is between the two springs? I would be very glad if you could give me a sketch of this front chassis.



GEORGE HARRISON.

Manchester.

Petrol Engines for Models.

[1210] Being greatly interested in petrol engines of small power I would like to ask you how ignition is arranged on the models described and illustrated on page 926 of your issue of November 12th, 1910.

I would particularly ask if such a small magneto is made, and if the weights stated in that article include the weight of the ignition apparatus.

If a small dry cell and coil is used perhaps you will kindly tell me the make.

Cairo. A. BAKER.

[The two-cylinder Davies model engine weighs 4¾ lbs. complete with carburettor, sparking plugs, contact-breaker, but without flywheel, petrol, and coil and accumulator.

In all cases the weights refer to the engine complete, but without fuel and coil and accumulator, and in some cases without the flywheel, which can sometimes be dispensed with.

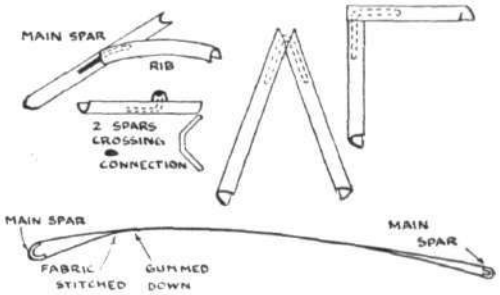
Ignition is by coil and accumulator in all the engines described except the Cochrane 3-h.p., which has a specially light Bosch magneto.

Several very light accumulators and coils are put on the market by various firms for use on small aeroplanes, no particular make being used with any of these engines; Gamages and Bonns being among the names that suggest themselves to us in this connection.—ED.]

Cambering Model Planes.

[1211] I notice from your correspondence columns that many of your readers have difficulty in obtaining correct camber on the planes of their models. I have overcome this trouble by the use of umbrella ribbing. The method of construction can be seen from the sketches.

The steel used for the ribbing varies a great deal, and it may be necessary to soften the harder varieties for bending by heating red-hot and cooling slowly. This need only be done where bend is considerable, as at leading edge of a small rib.



For forming the ribs draw out the exact form required and bend the ribbing with two pairs of pliers, laying it on the drawing for guidance.

The ribbing may be cut by nicking with a file and breaking between the fingers.

The joints are formed by soldering small steel wire connecting pieces into the hollows of the U-section ribbing.

The joining pieces are cut from hat-pins and bent hot.

Should anyone find the soldering a difficult job I should advise him to use "Fluxite," a paste flux which is much more effective than spirits.

A coat of enamel should be given to the joints and other places where it has been scraped off for soldering.

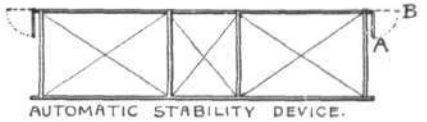
This method gives an exceptionally strong and light plane. I have made one 40 ins. × 6 ins. which weighs (covered) just over 2½ ozs.

Sydenham. STANLEY C. CAPES.

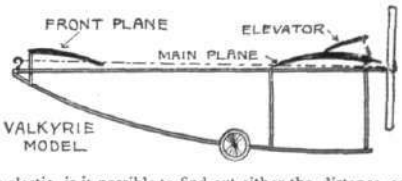
Model Design.

[1212] 1. Is it possible to determine what horse-power (of course a fraction of one) an elastic motor possesses?

2. If so, and after having found it and wound up the propeller on a model, say 300 times with six strands (of 2 ft. 8 in. each) of $\frac{1}{16}$ in. square elastic, is it possible to find out either the distance or speed of model in flight when surface area and total weight is known?



AUTOMATIC STABILITY DEVICE.



3. Which is the best way to make rounded ends to the planes, with steamed wood or bent cane?

4. Would the device shown in the accompanying sketch for automatic lateral stability be desirable?

On a biplane (or monoplane), if two curtains, A, hanging loose were allowed to swing with the machine in flight, would A, on swinging out to B when turning to left, automatically bank machine up if the end and extra piece made more supporting surface that side?

I have just finished the monoplane on Valkyrie lines shown in the second sketch.

Golder's Green. A. CURTIS.

[1. Measure the torque (twist in inch lbs.) throughout a range of "turns" and multiply the mean torque thus found by 6·4, which gives the work done per revolution. Measure the revs. per min. and multiply by work done, which gives the power in inch lbs. per minute. Divide by (12 × 33,000) to obtain the horse-power.

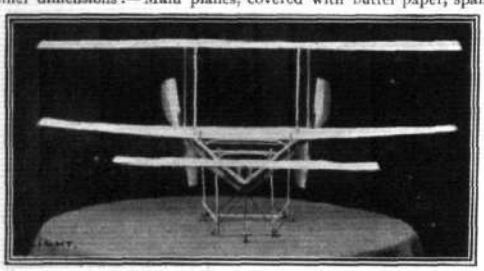
2. Estimates based on experiment are the only safe guide.

3. A matter of individual preference.

4. No.—ED.]

Model Biplane.

[1213] Enclosed please find photo of a model biplane of my own design, which has made several good flights from the ground. Chief dimensions:—Main planes, covered with butter paper, span



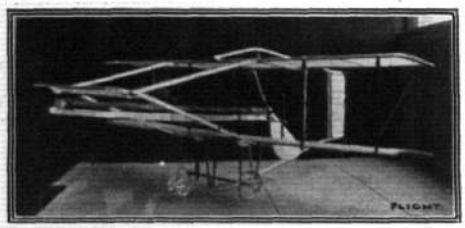
3 ft.; chord 8½ ins. Elevator, span 17 ins., chord 5 ins. Propellers of aluminium, opposed, 10½ ins. each of own make. Body or main frame of ⅛th in. square birch.

I find that 10 strands of ¼ in. strip rubber to each propeller is sufficient to lift the model, which weighs complete 8 ounces.

Upper Tooting. P. W. HITCHMAN.

Model Cody Biplane.

[1214] I enclose photo of a model biplane of the Cody type



which might interest readers of FLIGHT. It is 34 in. span overall, length 33 ins., and weight 10 ozs.

Swanley. H. PLUME.

Model Construction.

[1215] I should be glad if your readers would answer me the following questions:—

1. Mr. Fleming-Williams, writing a description of his latest model, said that with his 3 ft. 9 in. model he used eight strands of strip rubber to each propeller, and could obtain 1,000 turns. Would this mean *each* propeller 1,000 turns, or only 500?

2. In making the propellers for my models I use satin walnut. I find it impossible to make them retain their shape. About two or three hours after steaming they straighten out. What I would ask is, can I use any better wood, or is there some little trick, perhaps, which I do no know?

37, Belmont Road, South Norwood. W. H.

SCHOOL AERO CLUB.

Arundel House School Ae.C. (15, ARLINGTON ROAD, SURBITON).

ON Saturday, June 3rd, a unique model glider contest was held on the Station Hill, Oxshott, and proved a great success. Tests were imposed for (*a*) distance, (*b*) duration, (*c*) stability, (*d*) steering, and (*e*) construction, and the competitors were fifteen in number. The arduous duties of judging were efficiently carried out by Mr. Baker, who made the following awards: Senior branch, 1st prize, value 5*s*., Cyril Ridley and C. K. Scarf (tie); Junior branch, 1st prize, value 5*s*., Ralph Griffiths. Some remarkable results were obtained both as regards distance and duration, Cyril Ridley's "Butterfly" covering 207 ft. in 29 secs., which constitutes a club record for a model glider. Crawford Griffith's "Valkyrie" also flew long distances, and was much admired by the spectators.

After the competition Cyril Ridley brought out his new high-flying monoplane and made, at a great elevation, several remarkably good flights of 55–62 secs.' duration. The proceedings concluded by a duration contest between R. Pears (Ridleyplane No. 51) and A. Baker (Mann monoplane No. 37) for a special prize, which was won by the former with a flight of 28 secs.

PUBLICATIONS RECEIVED.

The Aviator's Storehouse. A. V. Roe and Co., Brownsfield Mills, Manchester.

Aeroplane Accessories and Engineers' Supplies. Pfeil, Stedall, and Son, Broad Street, Bloomsbury, W.C.

Aeronautical Patents Published

Applied for in 1910.

Published June 8th, 1911.

6,316. T. E. R. PHILLIPS. Control of aerial vessels by wave-transmitted electricity.
19,349. R. ESNAULT-PELTERIE. Construction of sustaining planes.
20,184. A. J. GRANT. Discharge of bodies or articles from aeronautica machines.
21,941. W. HOLTRING. Airships.
27,227. L. BRIANNE. Propulsion of captive flying machines.

Applied for in 1911.

Published June 8th, 1911.

248. H. O. EIANE. Aerial machines.
1,372. W. H. HART AND C. VON BUCH. Aeroplanes.

DIARY OF COMING EVENTS.

British General Events.

July 1 .. Gordon Bennett Aviation Cup Contest.
July 22–Aug. 5 *Daily Mail* Round England Contest.
Oct. 31 .. Close of British Michelin Cup.

Foreign Fixtures.

May 28–June 15 Paris—Rome—Turin.
June 18 .. European Circuit—Paris, Brussels, London, Paris.
July 11 .. Paris—Bordeaux—Paris.
July .. Italian Circuit.
July 1–13 .. Circuit Berlin—Hanover—Hamburg.

PRINCIPAL CONTENTS.

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